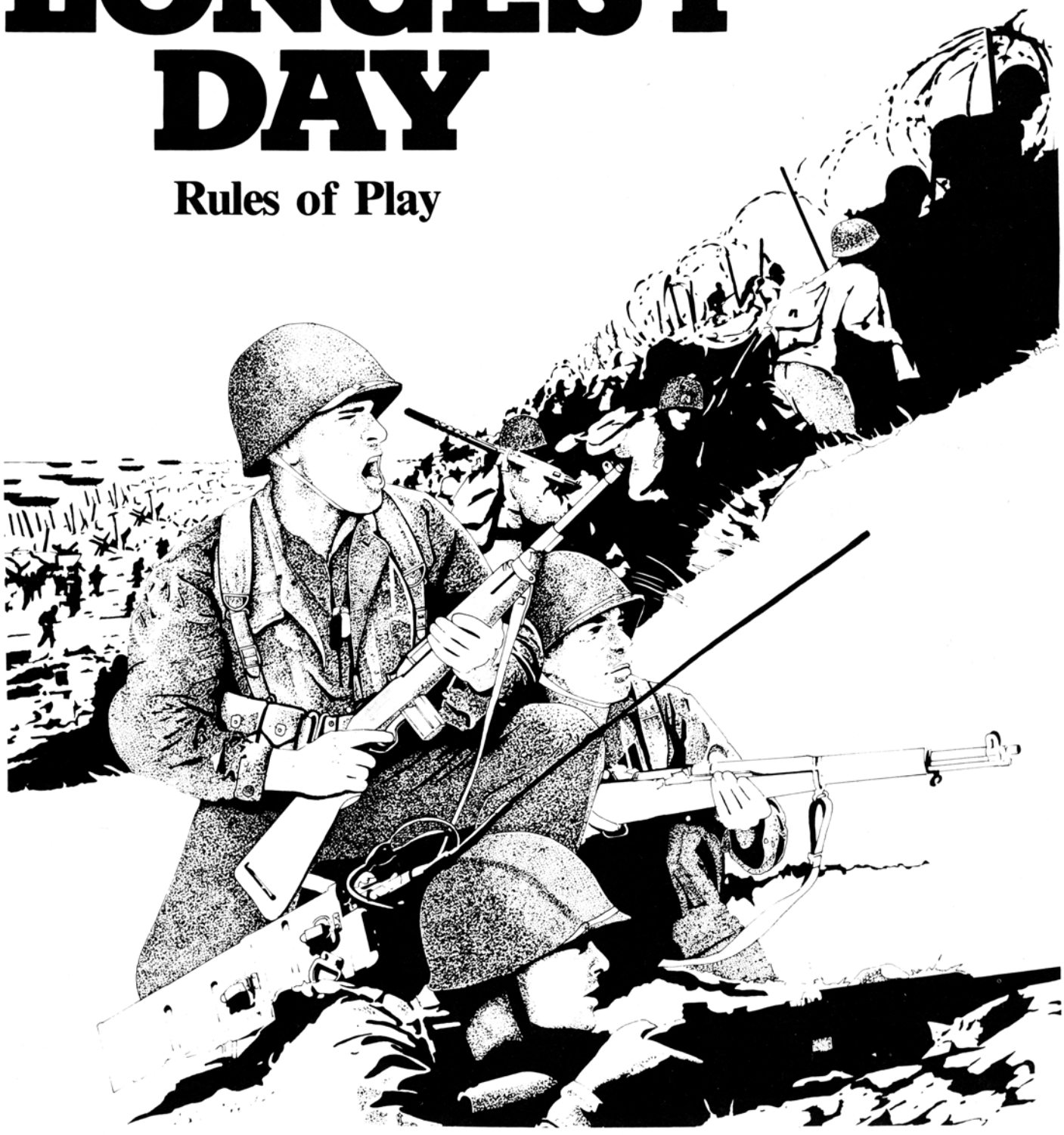
AVALON HILL'S

THE LONGEST DAY

Rules of Play



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COUNTER ERRATA:

German Sheet #1:

1. 130 Panzer Div: Recon battalion: inverted side values should read 4-5-*8*, NOT 8-8-*8* on both sides.

2. 1ss Panzer Div: 10/1 battery designation missing from artillery battery.

3. 130 Panzer Div: III/130 missing divisional number.

German Sheet #2:

4. 16 LW Division: II/16 missing divisional number.

American Sheet:

5. 82 AB Div: 2/507 battalion designation missing.

6. 3 ARM Div: 3/36 missing divisional number.

7. 102 ARM CAV: Designation should be '38' on second '102' unit.

8. 319 & 320 Artillery Battalions: Both counters missing: (3)-1-8, range 6.

British Sheet:

9. 6/2C & 10/2C armored battalions: Both units missing 'DD' symbol.

MAPBOARD ERRATA:

Section A Special Diagram:

1. Unmarked light flak unit S of ROUL is '932/5'.

Section B:

2. Unmarked FS infantry unit N of St. Jores is 'I/6 FS'.

3. Unmarked infantry unit E of Coutances is '518' battalion of 352 Division.

4. Unmarked infantry unit NE of Brehal is '513' battalion of 352 Division

5. Unmarked infantry unit NW of Gavray is '517' battalion of 352 Division.

Section C:

6. Coastal strongpoint NE of Pointe du Hoc should be in hex which landing box arrow points towards.

7. Unmarked flak unit NE of Mandeville is 'III/3'.

Section D:

8. Unmarked 21 Div flak unit SW of Blaineville is '305'.

9. Unmarked 21 Div tracked artillery unit NE of Bourgebus is 'II/155'.

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RULES OF PLAY

BACKGROUND

The Normandy invasion was the largest amphibious assault ever attempted in the recorded history of mankind. It was a militarily complicated and technologically complex undertaking. The planning and training for the invasion literally consumed a full year from the lives of over a million men and women. The machines of war required for the invasion occupied a large chunk of the industrial output of two of the most industrialized nations on earth. The result was a 5,000 ship invasion armada the likes of which the world has not seen since. This armada spewed onto the beaches a largely untried and unblooded coalition army of half-a-dozen different nationalities to face a ferocious enemy. The entire Allied juggernaut, ironically, was held by a slender thread of a supply line extending across the treacherous English Channel. Should that thread have broken, the entire Allied colossus would have wallowed helpless on the beach like a stranded sea turtle.

Opposing the Allied armada was the battered but veteran German *Wehrmacht*. Dug-in and waiting, the German divisions were capable of giving as well as they got. They were the end-product of a military system made lean and hard by five years of total warfare. They considered themselves to be the outer bulwarks of an empire that was supposed to stand for a thousand years.

As stupendous as the assault was, it was only a prelude to the enormous land battle that drained the two opposing armies in the bocage and pastures of Normandy in the ensuing ten weeks. This titantic struggle, pitting Allied material superiority against German tactical superiority, sealed the fate of Hitler's Third Reich.

This is a BIG game that attempts to tell the story of the biggest amphibious assault in history in intimate detail. Involvement in the game will reveal the inner workings of two of the best armies ever fielded. This is also an absorbing challenge as a game, pitting opponents against each other as well as against history.

THE LONGEST DAY is a game of amazing scope and epic dimensions. It cannot be consumed quickly. There is simply too much information to analyze. The game should be enjoyed slowly, savoring all of the nuances and subtle variations. One cannot trip lightly through it in an evening. A player will get out of this game at least as much as he puts into it, and probably a whole lot more. .

THE PROGRAMMED INSTRUCTION METHOD

THE LONGEST DAY uses the Programmed Instruction (P.I.) method to introduce the rules of the game in 'bite-size' chunks. This allows novice players to firmly and gradually absorb the game system without having to read pages and pages of rules prior to play. Due to the progressive structuring of the rules, each scenario builds upon the rules presented in the preceding scenarios. The last rules module, for example, contains only those rules which pertain to the Campaign Game and are unused in the scenarios. In this manner, players are only given the rules required to play the scenario at hand. The result is that novice players begin play more quickly and with a better understanding of the game system.

CAUTION: It is *strongly* recommended that Novice players play each scenario in order, before advancing to the more complex scenarios. The beginning two scenarios are *learning* vehicles. Play them only once each in their basic form before progressing to the next module. After all five rules modules have been played once, add the extra rules to the earlier scenarios as outlined in the Scenario Addenda section. This converts them from learning scenarios to full-fledged simulation scenarios. Only after playing all of the scenarios should players tackle the heart of the game, the Campaign Game! If the above regimen is followed, the Campaign Game will become a simple and smooth transition from the scenarios. NOTE: Veteran players are urged to SKIP playing the FIRST THREE scenarios and to begin play with scenario four or five. VETERAN players only, please!

A WORD ABOUT 'MONSTER GAMES'

A game is meant to be *played,* not merely looked at, studied or 'fooled with'. Regardless of whether it contains 200 or 2,000 unit counters, every game should a be polished, well-tested product. THE LONGEST DAY has been designed to be *played,* as well as analyzed and studied. It contains a very sophisticated game system that has been painstakingly designed to be smooth and efficient. Given the absolutely enormous proportions of the package, every effort has been extended to eliminate superfluous 'labor' in the game system. It *is* a polished, well-tested product. Nothing has been sacrificed in the way of 'simulation' to make it this way. Play it. Study it. Enjoy it.

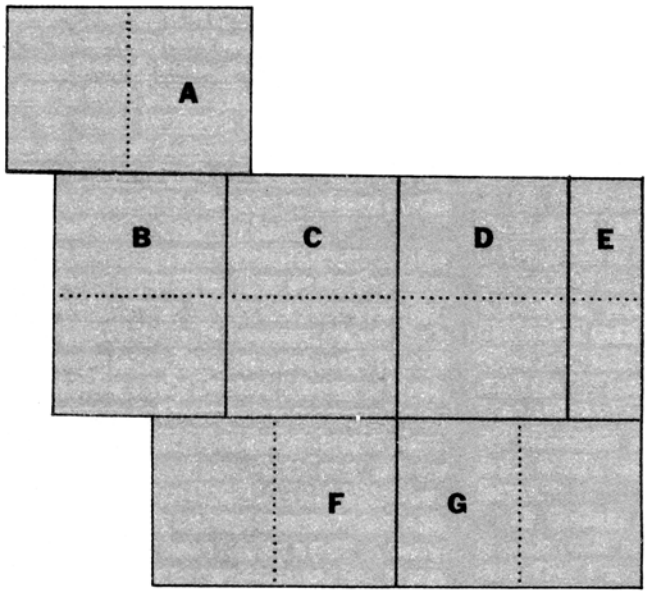
DESCRIPTION OF PLAY

The game is played in turns with each player alternately moving his playing pieces and resolving combat in succession. A player may move *all* of his pieces during the movement portion of his turn and then may have 'combat' with any enemy pieces his units are adjacent to. The combat procedure is simply a mathematical method of determining who wins a particular combat situation and consists of comparing the numerical strengths of the opposing pieces as a ratio and then consulting a table to find out who wins or loses. The die has nothing to do with movement! It is only to represent a range of possible outcomes reflecting the uncertainties of real battle.

GAME COMPONENTS

A. THE MAPBOARD

The playing board consists of seven rectangular sections of varying size which, when arranged in the proper configuration, create a map of the Normandy-Calvados region of northern France. Printed over the map is an hexagonal grid pattern which serves the same purpose as squares on a chessboard to regulate movement. These hexagons are called 'hexes' for short. The mapboard sections fit together as illustrated:



MAJOR CITIES/ MAP SECTION:

A—Cherbourg
B—Coutances
C—St. Lo
D—Caen
E—Cabourg
F—Avranches
G—Argentan

B. GAME SCALE

THE LONGEST DAY is a tactical-level game. Each hexagon on the mapboard represents a scale distance of two kilometers. Each turn represents one day (24 hours).[1] The unit counters represent company and battalion-sized military formations.[2]

C. CHARTS AND TABLES

There are three fold-out player-aid charts and several cards included in the game. These cards and charts contain all of the information required to play the game.[3] They include the following:

1. Combat Results Table/Terrain Effects Chart (CRT/TEC): The CRT is used to resolve combat. The TEC lists the functions and effects of the various terrain types represented on the mapboard.

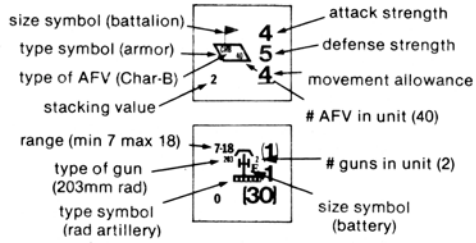
2. Campaign Game Fold-out Cards: These three large cards are used for organizing units and game functions for the Campaign Game and later scenarios.

3. Scenario Set-up Diagrams: On the reverse side of the Campaign Game cards are mapboard diagrams to be used to set-up unit counters in their proper starting positions for each scenario.

D. THE UNIT COUNTERS

The printed die-cut cardboard squares are the playing pieces for the game. Variously called 'unit counters', 'units', or 'counters', each piece represents an actual military unit or acts as a marker to identify special game conditions on the mapboard:

1. Each unit counter contains the following information:



2. Identification System: Each unit has either one or two groups of identifying numbers printed on it; one group is the name of the unit itself and the other group is the name on its parent unit.

a. The number printed in small characters below the typed symbol is the unit's name. This is usually in the form 'battalion/regiment' (EXAMPLE: 'III/915' identifies the third battalion of the 915th Regiment.)

b. The number printed in larger characters below the unit's name is the name of the parent headquarters unit. A unit's parent HQ is defined as being that HQ counter to which the unit belongs exclusively.

c. If there is NO parent HQ indicated, that unit has no permanent parent unit and is considered to be an INDEPENDENT unit.

3. Unit Counter Symbols: In order to clarify game functions and to present additional historical information about each specific unit on the unit counter itself, a new type of symbology is employed. This symbolic system is a modification of the German system actually used in the campaign. Do not be overwhelmed by its superficial complexity! Its basic symbols have been used in wargaming for years. The only difference is that the present system allows for a much more accurate classification of unit types by function and equipment.[4] This in turn, allows for a more precise application of game rules and functions. The counter symbols are combinations of the basic symbols listed on the *Unit Symbol Chart*.

4. The units in the game are classified into several broad categories according to their real-life characteristics for several very important rules purposes. A unit's classification is determined by the unit type symbol printed on its counter as indicated on the *Unit Classification Chart*.[5]

I. SCENARIO #1: MORTAIN

A. SEQUENCE OF PLAY

THE LONGEST DAY is played in turns. Each turn is divided into two player segments with each player segment further divided into several 'phases' which organize a player's activities during his segment. The step-by-step sequence of play is outlined below:

1. ALLIED PLAYER SEGMENT

a. Allied Regular Movement Phase: The Allied player may move all of his units to the limit of their movement allowance as modified by the presence of enemy units and restrictive terrain.

b. GERMAN Mechanized Movement Phase: The *German* player may move all tracked and semi-tracked units to the limit of their movement allowance as modified by the mechanized movement phase rules, etc.

c. Allied Combat Phase: Allied units may execute and resolve attacks made against adjacent enemy units, at the Allied player's option.

2. GERMAN PLAYER SEGMENT

a. German Regular Movement Phase: Same as Allied phase.

b. ALLIED Mechanized Movement Phase: Same as German phase.

c. German Combat Phase: Same as Allied phase.

B. MOVEMENT

During the movement phase of a player's segment, he may move all, some, or none of his units, at his option. Each unit counter may be moved as many hexes as possible within the limits of its movement allowance, terrain restrictions, and other game rules:

1. Each unit counter is moved individually by tracing the path of movement through each separate hex.

2. The number of hexes through which a unit may move in one turn is indicated by its movement allowance. A unit's movement allowance is expressed in terms of a certain number of movement points. In general, each unit counter expends one movement point (MP) of its movement allowance for each hex it enters. Quite often, however, terrain effects (see below) will require

units to expend *more* or *less* than one movement point to enter a hex of a particular type.

3. In any given movement phase, a player may move as many or as few of his units as he chooses. Movement is always voluntary, never mandatory.

4. A unit may be moved in any direction or combination of directions. A unit may expend some, none, or all of its movement allowance each turn. Un-used movement points may not be transferred from unit to unit or accumulated from turn to turn.

5. Once a unit has completed its movement, it may not be changed, repositioned, or realigned. A unit's movement is considered completed when the player begins to move another unit.

6. No combat may take place during the movement phase. No enemy units may move during a friendly movement phase.

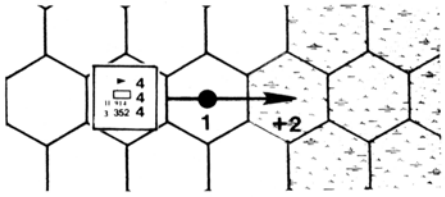
7. A unit may freely pass over or stop in the same hex with other friendly units, subject to stacking limitations. A friendly unit may not enter hexes containing enemy combat units.

8. A unit must stop and end all movement for that phase when it moves adjacent to an enemy zone-of-control. (see below)

9. A unit with a movement allowance of '0' may never move from its initial starting hex.

10. A complete list of all terrain features and their effects on movement and combat is contained in the Terrain Effects Chart.

11. A unit may not enter a hex of a particular terrain type unless it has sufficient movement points available to expend in doing so:



EXAMPLE: A unit moving as illustrated, expends movement points in the following manner: 1 MP (clear terrain hex) + 2 MP (clear terrain to swamp hex) = 3 MP total expended. The unit cannot enter another swamp hex because it costs 2 MP to enter and it has only one MP remaining in its movement allowance.

C. MECHANIZED MOVEMENT

1. During the friendly MECHANIZED movement phase, full-tracked, half-tracked, and certain types of reconnaissance units may move their full movement allowance. These units are identified with a line underneath their movement allowance numbers.

2. EXCEPTION: A unit may NOT move during the mechanized movement phase if it is DISRUPTED (see scenario two rules), or if it is adjacent to any enemy combat units at the beginning of the mech move phase.

D. ROAD MOVEMENT

1. A unit may move from road hex to an adjacent, connecting road hex of the same road at the road movement rate for that class of road. There are two classes of roads; primary and secondary. (See *Terrain Effects Chart.*)

2. When entering a road hex from an off-road hex or from a different road, the unit must expend the movement points equal to the other terrain in the hex.

3. A unit moves into a road hex at the movement rate determined by its movement category as stated on the *Terrain Effects Chart.*

4. A unit may freely combine road and off-road movement in the same phase (EXCEPTION: See Strategic Road Movement, below).

E. STRATEGIC ROAD MOVEMENT

1. Only MOTORIZED and TRACKED unit-types may use strategic road movement. A unit using strategic road movement DOUBLES its movement allowance for that phase.

2. Strategic road movement may be used in both the regular and mech movement phases. The use of strategic road movement is limited as follows:—

a. All movement during the phase must be on primary or secondary roads or city hexes.

b. A unit may not start adjacent to or move adjacent to an enemy combat unit while executing strategic road movement.

c. A unit may not attack in any manner (either direct attack or artillery fire) in the player segment in which it executes strategic road movement.

3. SPECIAL: Strategic road movement may not be used during the 6 June turn of any scenario.

F. STACKING LIMITATIONS

A player may have more than one unit in a common hex. A player, however, is limited in the number of unit counters allowed in a hex at the same time:

1. No more than SIX 'stacking points' of friendly units may be in the same hex at the end of any type of movement or combat phase.

2. Each combat and non-combat unit has a certain stacking point value which is determined by the stacking value number printed in the lower left corner of each unit counter.

3. Units with a stacking value of '0' may be freely placed with other friendly units at no stacking cost.

4. If the stacking capacity of a hex is exceeded at the end of a movement or combat phase, the owning player must eliminate excess units from the hex until capacity equals six or less. The owning player has the choice of which units to eliminate.

5. Aircraft, train, fortification and replacement counters have a '0' stacking point value.

G. ZONE OF CONTROL

1. Whenever a combat unit is on a HILL hex or in a fortification, it is said to possess a 'Zone of Control' into the six hexes adjacent to the hex it occupies.[6] A hex in a unit's zone of control is said to be a 'controlled hex'.

2. Noncombat units do not have a zone of control under any circumstances.

3. Whenever a friendly unit enters an enemy unit's zone of control, it must stop and end all movement during that movement phase.

4. If a unit begins a movement phase in an enemy zone of control, it may leave the zone of control and move normally, or it may move directly from one enemy controlled hex to another, but then must stop and end all movement for that phase.

H. FRIENDLY HEX

1. A hex is considered friendly to a player if it is physically occupied by a friendly combat or noncombat unit or fortification counter, Aircraft and train units have no effect.

2. An unoccupied hex is friendly to neither side.

3. Enemy zones of control have no effect on the friendly condition of a hex.

I. COMBAT

Combat occurs between opposing units in adjacent hexes at the discretion of the player whose player segment it is. The player who initiates combat is said to be the *attacker* while the other player is considered the *defender.*

1. During the combat phase of his segment, a player may only attack those enemy units that are adjacent to friendly units. Only friendly units that are adjacent to specific enemy units may attack those units.

2. A unit is never required to attack during the combat phase, but always has the option of doing so.

3. No enemy unit may be attacked more than once per combat phase. No friendly unit may attack more than once per friendly combat phase.

4. All defending units in a hex must be attacked as one combined defense strength. Individual units in a hex cannot be attacked while others in the same hex are ignored.

5. Attacking units may attack the same defending unit from as many different hexes as possible, provided all of the attackers are adjacent to the defender's hex.

6. Not all of the friendly units in a hex are required to attack. Some may attack while others in the same hex do nothing. Units which do not participate in the attack do not suffer any adverse effects from the attack and may not participate in any retreats or advances resulting from the attack.

7. Not all of the friendly units in a hex are required to attack the *same* defending hex. Different units in the same hex may attack adjacent defenders in different hexes.

8. Defending units in adjacent hexes may not be attacked as a combined defense strength. No more than one hex may be attacked in each combat situation.

9. Each attack is resolved individually. To determine the results of the attack, follow this procedure for each attack!

a. For each separate combat situation, total all of the attack strength points of the attacking units together, then total all of the defending unit's defense strength points.

b. Convert these two totals into a numerical odds ratio (attacker to defender). Round-off this odds ratio downwards to conform to the simplified odds ratio categories printed on the *Combat Results Table.* EXAMPLE: Three German units totalling 21 attack strength points attack two Allied units totalling 10 defense strength points. This is converted into an odds ratio of 21 to 10, which is rounded down to 2-1 to conform to the *Combat Results Table.*

c. Where applicable, modify attack and defense strengths (due to terrain effects) as indicated on the *Terrain Effects Table,* before converting the odds ratio to the simplified odds categories.

d. Roll the die once for each attack situation, cross-indexing the number rolled with the proper odds category column on the Combat Results Table, to determine the result of the attack. All die roll modifications due to terrain effects,

UNIT SYMBOL CHART

SIZE is indicated by type of 'flag' in unit symbol:

company, battery, battalion, regiment, brigade/group, division, corps

TYPE indicated by symbol or combination of symbols added below size-flag.

infantry, parachute, glider, pioniere, armored engineers, recon, security, railroad engineer, panzer grenadier

armored, assault gun, self-prop gun, howitzer, anti-tank, flak, gun, nebelwerfer, mortar

coastal defense

BASIC WEAPON SYMBOLS

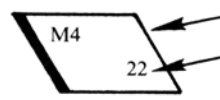
machine-gun, mortar, armored car, half-track, rocket launcher, mortar, howitzer, gun, Flak, nebelwerfer, coast arty, fixed battery

TRANSPORT MODES

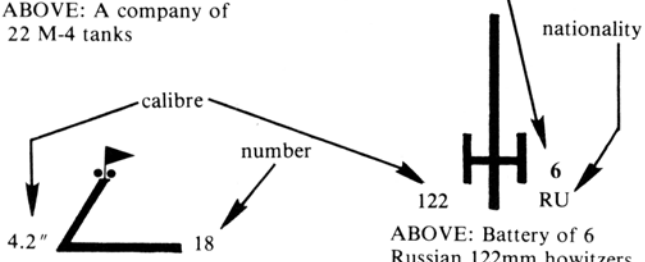
foot, horse-drawn, bicycle, motorized, half-track, full-tracked, rail move, stationary

This type of information which has no game function is presented solely for the edification of military history students and scholars. The information is presented in abbreviated form consisting of type, calibre, number of tubes or vehicles, and original nationality if the weapon is captured booty.

HISTORICAL INFORMATION



ABOVE: A company of 22 M-4 tanks



ABOVE: Battalion of 18 4.2″ mortars, self-propelled

ABOVE: Battery of 6 Russian 122mm howitzers with horse-drawn transport

GLOSSARY OF ABBREVIATIONS

CDO — Commando
CHC — *Churchill* AFV
CRM — *Cromwell* AFV
CZ — Czechoslovakian
EN — English
E — *Eisenbau* (Railroad)
FE — *Feld Ersatz* (Field RPL)
FUS — *Fusilier*
FR — French
IT — Italian
H35 — French *Hotchkiss* AFV
M4 — American AFV
RU — Russian
REM — Remnant
RGR — Ranger
RPL — Replacement
SHM — *Sherman;* British M-4 AFV
SOM — *SOMUA;* French AFV
IV — German Pzkw-IV
V — German Pzkw V; *Panther*
VI — German Pzkw VI: *Tiger*

HISTORICAL CAPSULES

SCENARIO ONE: MORTAIN—After the successful American breakout into Brittany, the German Army's left flank was left hanging. The Mortain offensive was launched to cut off the American salient and restore the German line. Some sources contend that the Allies were completely aware of the offensive and had, in fact set an ambush for the Germans based upon *Ultra* intercepts.[35] The offensive quickly fizzled when German units became intermingled and stalled in the face of mounting American opposition. An Allied victory.

SCENARIO TWO: THE FALAISE POCKET—For weeks the Germans ignored their open left flank as American forces swept deeper into their rear. When the British finally pushed past Caen, a monstrous encirclement was in the offing. The battle itself was simply a fighting, scrambling withdrawal over the Dives River. By all accounts, the Allies should have bagged the whole German army, but 'snafus' up and down the line allowed many of the battered German remnants to slip away. A German victory of sorts . . .[36]

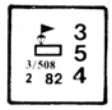
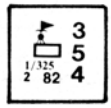
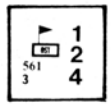
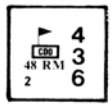
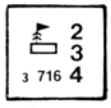
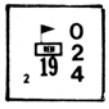
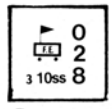
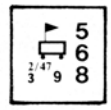
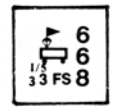
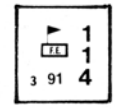
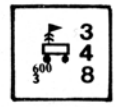
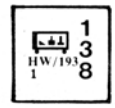
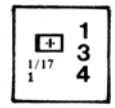
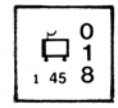
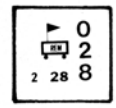
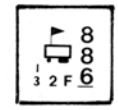
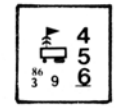
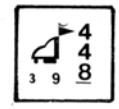
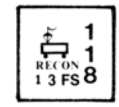
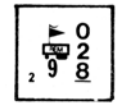
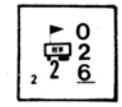
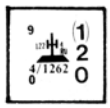
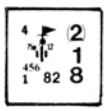
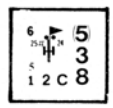
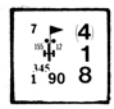
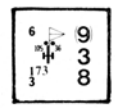
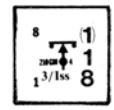
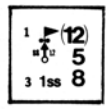
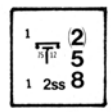
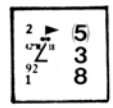
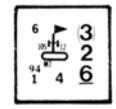
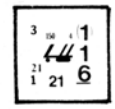
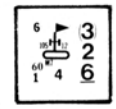
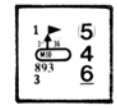
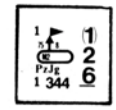
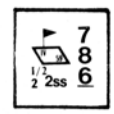
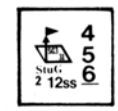
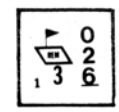
SCENARIO TWO: OPERATION COBRA—The Cobra offensive was originally projected as a modest preliminary to launching the actual breakout from the beachhead. Allied leaders were as surprised as the Germans when it turned into a full-scale rout in the aftermath of the Allied carpet bombing attack. The Allies were simply able to adjust to the changing situation more quickly than the Germans. Thus a very good attack turned into a wildly successful Allied victory.[37]

SCENARIO FOUR: THE FALL OF CHERBOURG—The Allies figured that they would need a port before the bad weather in November closed the beaches. The Germans, mindful of the Dieppe raid, had fortified the city and its environs heavily. It was certainly no grand 'fortress', as Hitler liked to style things, but it was a formidable complex if properly defended. Fortunately for the Americans attacking it, the fortress was not well defended. The odds-and-ends units that were left after the base of the peninsula was severed could barely offer a coherent defense, much less a successful one. There were too many troops for a simple rearguard covering the demolitions and too few to make a long term siege a possibility. All they could have expected to do would be to delay the inevitable Allied victory until the port had been thoroughly demolished.[38]

SCENARIO FIVE: NORMANDY BEACHHEAD—The Allies could have lost their battle during the first three crucial days on the beach. That they were not thrown into the sea illustrates two important historical considerations: First, the Allies were *exceedingly* well-prepared to land an army on hostile shores. Secondly, even with all of this preparation and forethought, the invasion could have failed due to extraordinary enemy action or acts of God. This scenario is an important preliminary to the campaign game. The victory conditions ask only that the players improve over the historical outcome, which this scenario defines as a draw.[40]

UNIT CLASSIFICATION CHART

A. Combat Unit Types (Units that attack/defend as ground units:)

	NON-MOTORIZED UNITS (Foot, horse-drawn, bicycle)	MOTORIZED UNITS (wheeled vehicle equipped)	TRACKED UNITS (full & half-tracked)
INFANTRY FUNCTION UNITS	infantry bicycle infantry  parachute infantry  glider infantry  German Ost infantry US ranger  British commando German fusilier  German pioniere Security  non-motorized infantry remnant  German field replacement	 motorized infantry  German fallschirmjsager recon (British US)  German Field replacement  German Pioniere  heavy weapons  machinegun company  German luftwaffe alarm US mech cav Security company  motorized infantry remnant	 armored infantry  Panzer pioniere  German recon  German luftwaffe recon  German recon remnant  Panzer grenadier or armored inf remnant
ARTILLERY FUNCTION UNITS	 casemated coastal def artillery open artillery horse-drawn battery horse-drawn battalion parachute arty battalion  glider arty battalion Eisenbau (railroad) artillery Eisenbau (railroad) coastal artillery	 towed artillery  U.S. HQ/ artillery  US artillery group  morser battery  Flak battalion  anti-tank battalion nebelwerfer battalion mortar battery Flak battery  US 4.2″ mortar battalion fortress NW battalion	 armored arty battalion  nebelwerfer battery  US HQ/ artillery  self-propelled anti-tank battalion  self-propelled anti-tank company
ARMOR FUNCTION UNITS	NONE	NONE	 tank battalion  assault gun battalion crocodile company tank company assault gun company  armored remnant

SPECIAL ARMOR FUNCTION UNITS

landfronte fortification

coastal strongpoints

NONE

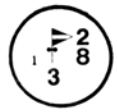
RMSR troops

AVRE squadrons

HQ UNITS

nebelwerfer brigade

infantry division

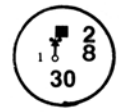


motorized inf div

airborne division

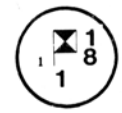
panzer-grenadier div

armored panzer div



sturm flak regiment

sturm flak korps

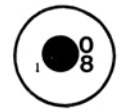
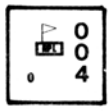
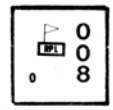
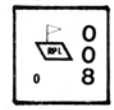


infantry corps

panzer korps

fallschirmj-sager korps

B. Non-combat Unit Types:

	NON-MOTORIZED UNITS	MOTORIZED UNITS	TRACKED UNITS
SUPPLY FUNCTION UNITS	AIR SUPPLY		NONE
REPLACEMENT FUNCTION UNITS		 	NONE

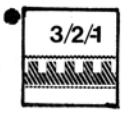
C. Fortification Unit Types:

FORTIFICATION FUNCTION UNITS

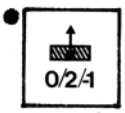
fortified area

minor fort

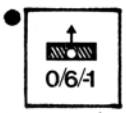
field fortification



landfronte fortification



coastal strongpoint



coastal strongpoint

*NOTE: These types have intrinsic defense strengths. They are also treated as armor function units for C.A.M. purposes, thus they are listed under special armor function.

D. Air Unit Types:

	TACTICAL AIR INTERDICTION	TACTICAL AIR SUPPORT	STRATEGIC INTERDICTION
AIR FUNCTION UNITS	fighter-bomber	medium bomber light bomber	heavy bomber rear

E. Indicator Counter Types:

disrupted marker

rail movement train counter

rail cut marker

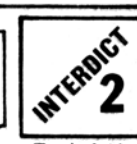
air interdiction marker

beachhead marker

mulberry markers

damaged mulberry marker

(Port Markers)

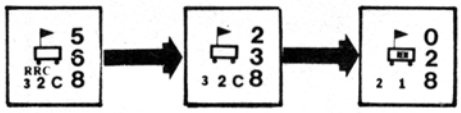


Tactical Air Interdiction Marker

disruption, etc., are cumulative.

e. Apply the results to the attacking or defending units immediately.

10. Extracting Losses: When called for on the *Combat Results Table,* a unit takes losses in the form of 'step losses'. A unit possesses either one, two or three strength-point steps. A unit loses strength in this order: Full Strength Step—Half-Strength Step (inverted)—Remnant Step. *Full-strength* is the value printed on the front of the unit counter. *Half-strength* is the value on the reverse side of the counter. The *Remnant* step is the replacement of a half-strength unit with a remnant (REM) counter:



a. A unit has only ONE step if it has no inverted side with a reduced counter printed on it.

b. A unit has only TWO steps if its INVERTED defense strength is '2' or less.

c. A unit has THREE steps if its INVERTED defense strength is '3' or more.

11. Remnant Counters: Whenever an inverted three-step unit suffers a one-step loss, it is removed from the mapboard and replaced by the appropriate type of REM counter. REM counters move and engage in combat in the same manner as regular combat units.

a. Each side can have no more REM counters in play than are actually provided in the unit counter set. If all applicable REM units are in play, inverted units suffering one step losses are eliminated instead.

b. In the scenarios, REM counters can never be built back up, so that the inverted counter is simply placed in the dead pile.

c. To determine which type of REM counter replaces a specific type of combat unit, refer to the *Remnant Exchange Chart.*

12. Retreat after Combat: When called for on the Combat Results Table, units are retreated according to the following principles:

a. Each player retreats his own units.

b. A unit may be retreated in any direction, but it cannot retreat into the same hex twice nor may it retreat into sea hexes, enemy-occupied hexes, empty hexes in an enemy zone-of-control, prohibited hex types, or across a river hex side. Units may, however, retreat across bridge/river hex sides.

c. The retreating unit must end its retreat at a distance away from its initial starting hex equal to the number of hexes which the unit was required to retreat. If it cannot, the unit must be eliminated instead.

d. A unit may be retreated into hexes occupied by friendly combat units (which are *not* involved in the current combat situation) even if those hexes are also in enemy zones of control. If such a retreat creates an over-stacked hex, the owning player must remove units in excess of the stacking limit at the end of the current phase. Specific units removed are chosen by the owning player.

e. Units which retreat into other friendly units which are subsequently attacked do not affect the outcome of that attack in any manner. They must, however, suffer the effects of any adverse combat results applied to that hex by subsequent attacks.

13. Advance After Combat: Victorious infantry—and armored-type units may advance after combat regardless of whether they are attacking or defending. Advancing units must stop and end all movement in the first town, city, or bocage hex entered. Units may not advance into prohibited hexes or across unbridged river hex sides. Such advances after combat must be executed immediately before any other combat is resolved. The first hex entered by an advancing unit must be one vacated by enemy units involved in the combat. Advancing units must stop and end all movement whenever they enter an enemy zone-of-control.

J. MAPBOARD ENTRY

1. A unit enters the game by being placed on a mapboard edge hex or a beach hex and expending an additional movement point *in addition to* the cost of entering the terrain in the hex. It may then move normally in the same movement phase with whatever movement points it has remaining.

2. A unit may not enter the mapboard through a hex containing an enemy combat unit.

3. A unit may not move or retreat off of the edge of the mapboard.

STOP! READ NO FURTHER!
PLAY SCENARIO ONE.

II. SCENARIO #2: THE FALAISE POCKET

A. EXPANDED SEQUENCE OF PLAY

The addition of more rules functions requires that the sequence of play be expanded by the addition of the following new phases:

1. ALLIED PLAYER SEGMENT

a. Allied REPLACEMENT PHASE: The Allied player introduces new units and additional supply units to the mapboard.

b. Allied Regular Movement Phase: Same as before.

c. German Mechanized Movement Phase: Same as before.

d. GERMAN DEFENSIVE FIRE PHASE: German artillery-function units may fire at Allied units adjacent to German units. Invert all ranged-artillery units that fire.

e. Allied Combat Phase: Same as before, but also invert all ranged-artillery units that fire.

f. Reset Phase: Turn all inverted GERMAN ranged artillery units, face-up. Remove all 'Disrupted' markers from ALLIED units.

2. GERMAN PLAYER SEGMENT

a. German REPLACEMENT PHASE: Same as above.

b. German Regular Movement Phase: Same as above.

c. Allied Mechanized Movement Phase: Same as above.

d. ALLIED DEFENSIVE FIRE PHASE: Same as above.

e. German Combat Phase: Same as above.

f. Reset Phase: Turn all inverted ALLIED ranged artillery units face-up. Remove all 'Disrupted' markers from GERMAN units.

B. ARTILLERY UNITS

Artillery units may apply their artillery attack strength against enemy units within range as follows:

1. Each un-inverted artillery unit may 'fire' (use its attack strength) once per player segment, either in the friendly defensive fire phase or in the friendly combat phase.

2. Each artillery unit has a specified range in hexes over which it may apply its attack strength. It may apply its attack strength against any single hex within range, counting the shortest path of hexes from the firing unit's hex to the target hex.

3. Artillery-function units are indicated by a bracket around their attack strength. Any unit possessing a bracketed attack strength may function as artillery. Units with a range greater than '1', are referred to as 'ranged-artillery units', indicating that they may attack non-adjacent enemy units. Units with a range of '1' may fire into adjacent hexes only, but they may attack in both the friendly combat phase and the friendly defensive phase of the same turn.

4. Support Fire: Artillery may assist regular combat units during the friendly combat phase as follows:

a. During the friendly combat phase, each uninverted artillery unit may add its attack strength to any attack by other combat units against enemy units occupying hexes which are in range.

b. The defending unit must be attacked by at least one friendly infantry or armored-type unit to be fired upon by an artillery unit.

5. Defensive Fire: Artillery may attack enemy combat units during the friendly defensive fire phase as follows:

a. During a friendly defensive fire phase, an uninverted friendly artillery unit may fire at (attack) any enemy unit within range that is also adjacent to at least one friendly (undisrupted) combat unit.

b. Defensive fire may be directed against any *single* enemy unit or *group* of enemy units occupying the same hex. (NOTE: In this exceptional case, whole stacks of enemy units do not have to be fired upon.) No enemy unit may be fired upon more than once in the defensive fire phase.

c. Defensive fire attacks are resolved in the same manner as regular attacks. Note, however, that all artillery units are immune to adverse combat results when firing in the defensive fire phase.

d. Enemy units forced to retreat as a result of defensive fire may not attack during that same player segment.

e. Ignore Combined Arms Modifiers (C.A.M.'s) for defensive fire purposes (see Scenario #3).

6. Artillery units may not be removed from play as combat losses when they are attacking in the friendly combat phase EXCEPT when they are adjacent to the specific enemy units that they are attacking.

7. Invert a ranged-artillery unit to expose the word 'FIRED' whenever it is used in either the defensive fire or combat phase. Turn all friendly inverted ranged artillery units face-up at the end of the ENEMY player segment. Artillery units

with a range of '1' are never inverted.

8. Inverted artillery units may move and defend normally.

C. CHAIN OF COMMAND AND MILITARY ORGANIZATION

For rules purposes, it will prove helpful to establish and define a standard military echelon system as it applies to the game. Military units are organized in a specific order which reflects the rank of their commanding officers. This results in a 'chain of command' indicating which units are subordinated to others and which occupy a higher echelon in the chain of command. Refer to the *General Military Organization* diagrams for the following:

1. A *Division* consists of a divisional headquarters (HQ) unit with subordinate battalion- and company-sized units which are permanently attached to it and carry its divisional number. (Units without divisional numbers are referred to and function as INDEPENDENT units.)

2. A *Corps* is a temporary collection of up to six independent artillery units controlled by a corps headquarters unit (CORPS HQ).[7]

3. A German *Nebelwerfer Brigade* consists of a Brigade HQ and subordinate *Nebelwerfer* battalions identified by the same brigade number.

4. German III *Sturm-Flak Korps* consists of a CORPS HQ unit, REGIMENTAL HQ units, subordinate company-sized units which are permanently attached to regimental HQ's and carry the same regimental number, and several independent flak units controlled by the *Flak-Korps* or *Flak Regiment* HQ unit.

These four military organizations represent the four types of FUNCTIONAL organizations used in the game. All other levels of command have been ignored in this system for rules purposes.[8]

D. SUPPLY

1. All combat units are defined as being either in a SUPPLIED state or in an UNSUPPLIED state depending upon whether or not they are in range of a supplied headquarters unit.

a. No more than ONE headquarters unit may occupy a hex at one time. An HQ unit is eliminated if forced to retreat into or through a hex occupied by another friendly HQ unit.

b. A headquarters unit is supplied if it is in the same hex as a supply unit.

c. Subordinate units of a division are supplied if they are within EIGHT hexes (see below) of their own supplied division HQ unit.[9]

d. Independent artillery units are supplied if they are within EIGHT hexes of a friendly supplied corps HQ.

e. Independent NON—artillery units are supplied if they are within EIGHT hexes of ANY friendly supplied division HQ unit.[10]

2. Supply Route: The eight-hex supply route from an HQ to a combat unit may follow any path or configuration no more than eight hexes in length, but it cannot include hexes containing enemy units or zones of control. NOTE: The presence of friendly units in a hex negates the effects of enemy zones-of-control in that hex for supply purposes. Any combat unit that cannot trace an eight-hex path to a supplied HQ unit is considered to be UNSUPPLIED.

3. EFFECTS: Unsupplied units cannot attack in any manner. Unsupplied units defend at half their normal defense strength. Unsupplied units have their movement allowance reduced by half.

4. Supply Capacity: Each HQ unit can supply only a limited number of units:

a. A division HQ unit can supply all of its subordinate units, plus a maximum of THREE independent units (of any type) at any one time. They may not supply units belonging to another division HQ.

b. A CORPS HQ unit can supply a maximum of SIX independent artillery-type units (regardless of size) at any one time. Corps HQ Units cannot supply divisional units nor can they supply NON-artillery type independent units.[11]

5. Supply Consumption: Supply units are 'used up' whenever they are heavily used by HQ units. Each supply unit has a 'full-strength' (front) side and a 'half-strength' (inverted) side. An HQ unit consumes supply in half-strength steps whenever subordinate units use their attack strength:

a. A divisional HQ unit consumes one half-strength supply step whenever:

1) Two or more subordinate units (or independent units using it as a source of supply) attack in the combat phase (regardless of the number of actual attacks made).

2) Two or more artillery units attack in the defensive fire phase. (In this case, each U.S. artillery group unit counts as THREE Units.)

3) Whenever a single subordinate unit attacks in either phase, the DIV HQ unit consumes NO supply steps.

b. A corps HQ consumes one half-strength supply step whenever one or more artillery units using the HQ as a supply source attack in any phase.

c. Supply is consumed immediately as units attack. Supply is NEVER consumed when a unit defends.[12].

6. Supply is determined at the instant that an attack is resolved. This means that a unit's supply status *can* change within a turn or phase. For movement purposes, however, supply is determined at the beginning of *each* movement (mechanized or regular) phase.

7. SPECIAL: For rules purposes, treat German *Sturm-Flak* regimental, the *2.b.V. 752* regimental, and *Nebelwerfer* brigade HQ's as DIVISIONAL HQ's for supply purposes.[13].

8. EXCEPTION: German Flak regimental and battalion HQ's and the *III Sturm-Flak Korps HQ* are considered to ALWAYS be in supply. They do not require supply units nor do they consume supply. Subordinate units are supplied if they can trace an eight hex path to their proper parent HQ or to the KORPS HQ (*III Flak Korps* unit only.) No more than SIX units may trace a supply path to the Korps HQ. Flak HQ's can supply ONLY Flak units.[14].

9. A supply unit is eliminated if it is in a hex without friendly combat units and adjacent to an enemy combat unit at the end of the enemy combat phase. Also, if friendly combat units in a hex with a supply unit are eliminated or forced to retreat, that supply unit is also eliminated.

10. Enemy combat units ignore supply units for movement purposes. They may move into, through or remain in a hex with a friendly supply unit without effect.

11. ENEMY supply units may NOT be used for supply purposes under any circumstances.

12. Supply units are always in a supplied condition for movement purposes.

13. EXCEPTION: REM counters are NOT subordinate units, but are treated as INDEPENDENT units for supply purposes.[15]

E. DISRUPTION

Units suffer a special combat effect, called 'Disruption', when defending against certain types of attacks:

1. A unit is disrupted when attacked successfully via enemy carpet bombing, naval bombardment, air bombardment, coastal artillery bombardment, or as a result of airborne drift, or if forced to retreat as a result of enemy defensive fire.

2. A disrupted unit is identified by placing a DISRUPTED marker on top of it.

3. A unit may be disrupted more than once per turn. A disrupted marker is placed on a unit EACH TIME that it is disrupted.

4. A unit remains disrupted until the end of the friendly reset phase. During the friendly reset phase, ALL disrupted markers are removed from all friendly units.

5. Effects: A disrupted unit is restricted as follows:

a. A unit may not attack or fire while disrupted. If forced to attack, it is eliminated instead.

b. Each disrupted marker adds '+1' to the die roll for any subsequent combat situations in which a unit is defending. Such die roll modifications are cumulative.

c. A disrupted unit may only move a maximum of one hex per movement phase.

d. A unit cannot exert a zone-of-control while it is disrupted.

e. Except for the above limitations, headquarters and supply units may execute their supply functions normally while disrupted.

STOP! READ NO FURTHER! PLAY SCENARIO TWO.

III. SCENARIO #3: OPERATION COBRA

A. EXPANDED SEQUENCE OF PLAY

The addition of still more rules functions requires that the sequence of play be expended by the addition of the following new phase:

1. ALLIED PLAYER SEGMENT

a. Allied Replacement Phase: Same as before.

b. Allied AIR/NAVAL PHASE: Allied player executes naval bombardment, all aircraft unit counter placement functions and carpet bombing operations.

c. Allied Regular Movement Phase: Same as before.

d. German Mechanized Movement Phase: Same as before.

e. German Defensive Fire Phase: Same as before.

f. Allied Combat Phase: Same as before.

g. Reset Phase: Same as before.

2. GERMAN PLAYER SEGMENT:
Same as before.

B. COMBINED ARMS MODIFIERS

Whenever certain combinations of unit-types occupy the same hex, they attain specific benefits on the Combat Results Table which they would not, by themselves, possess. Refer to the *Combined Arms Modifiers* chart on the CRT card for the following rules section:

1. Defending units occupying the same box at the beginning of the combat phase and attacking units that occupy the same hex and attack the same unit may increase or decrease their combat effectiveness depending upon their functional type as indicated on the *Unit Classification Chart.*[16]

2. For each attack, determine the C.A.M. category for the attacker and for the defender. Cross-index the two categories to find the die roll modifier. Modify the combat resolution die roll by the resulting positive or negative number.

3. NOTE: A unit's combined arms modifier is not affected by supply or terrain considerations.

4. C.A.M. may NOT be used for defensive artillery fire.

C. AIR POWER

The Allied player is provided with aircraft unit counters as shown on the *Aircraft Deployment Display.* These units are employed on the chart and on the mapboard to abstractly represent the aircraft available during the actual campaign.[17]. There are three missions that aircraft units can engage in: tactical air support; tactical air interdiction; and carpet bombing:

1. Tactical Air Support: The Allied player may deploy his light and medium bomber units directly against enemy units:[18]

a. During the Allied air/naval phase, the Allied player allocates his light and medium bomber units to any desired hex or hexes on the mapboard. They have no stacking limitations.

b. Bomber units may be positioned on top of Axis units that the Allied player intends to attack during the combat phase.

c. During the combat phase, the Allied player adds the attack strength of each bomber unit to that of the regular ground units attacking Axis units in the bomber's hex.

d. Bomber units may not attack enemy units without at least one Allied infantry- or armor-function unit also attacking those units. If bomber units are allocated to an enemy occupied hex and the Allied player does not attack those units in the combat phase, the bomber units have no effect.

e. Bomber units are removed from the mapboard at the end of the Allied combat phase. They suffer no adverse combat effects and may not be removed as combat losses.

2. Tactical Air Interdiction: The 37 Allied Fighterbomber (FB) units are used by the Allied player to impede German movement.[19] They are indirectly allocated to the mapboard as follows:

a. During the air/naval phase, the Allied player distributes the fighter units of each nationality (U.S. and British) into any of the eight air interdiction boxes on the chart, numbered #1 through #8 for each nationality. No more than eight AIR INT boxes may be used by any one nationality. Whenever FB units are placed into an AIR INT box, the accompanying AIR INT counter of the same number may be deployed anywhere on the mapboard, along with a number indicator counter that represents the radius of the 'zone of interdiction' posessed by that AIR INT unit (see below).[20]

b. AIR INT counters produce a 'Zone of Interdiction' which impedes German mapboard movement. The radius of this zone, however, varies depending upon the number of FB units in the AIR INT box represented by each AIR INT counter. As indicated on the chart, the zone of interdiction may vary from one single hex to a five-hex radius encompassing an area of 91 hexes. The radius of this zone is reflected by a number indicator counter which may vary from turn to turn. Radii are measured from, but do not include, the AIR INT hex.

c. Effects: AIR INT counters produce the following effects on German units:

1) The road movement rate for all German units entering hexes in an Allied zone of interdiction is increased to one movement point per hex (instead of ½ or ¼ MP per hex.)

2) Bridges which are in interdiction hexes reduce (*not* negate) the regular river crossing penalty from four additional to only one additional movement point.

3) EXCEPTION: Zones of interdiction have absolutely no effect against roads or bridges that run into FOREST hexes.

d. Only AIR INT markers create zones of interdiction. Bomber units do not.

e. AIR INT markers are removed at the start of the Allied player's next air/naval phase.

3. Carpet Bombing: The Allied player is provided with six heavy bomber units with which he can create the tactical bombing technique dubbed 'carpet bombing'. These heavy bomber units are used in scenario three to replicate the actual carpet bombing techniques used during the campaign. In the campaign game, however, they will have other functions besides carpet bombing.

a. Carpet bombing attacks are allocated, positioned, and resolved during consecutive Allied air/naval phases. Only one carpet bombing mission may be planned or executed at any one time.

b. Carpet bombing may be used anywhere on the mapboard. It may be used as many times as desired, subject to the three-turn allocation cycle outlined below.[21].

c. Procedure: Each carpet bombing attack must be planned and executed as follows:

1) Each attack must be designated one turn in advance by allocating all six heavy bomber units to the carpet bombing hex on the *Allied Aircraft Deployment Display* and making a side notation as to the approximate location of the attack (by citing the location of a town, village, or natural terrain feature that is contained within anyone hex of the six-hex bomb patten.)

2) On the Allied air/naval phase following allocation to the C.B. box, the heavy bomber units may either remain in the box or may be moved to the mapboard.

3) On the turn they are moved to the mapboard, the heavy bomber units are positioned on the mapboard and then they 'attack' any enemy units that occupy the same hex. After they attack, the heavy bomber units are inverted to expose the '+2' movement point penalty printed on their reverse side.

4) At the start of the following Allied air/naval phase, the heavy bomber units are removed from the mapboard and returned to their holding boxes on the *Allied Aircraft Deployment Display.* They may not be used during that air/naval phase.

5) The heavy bomber units may be allocated to the carpet bombing box on the turn following their return to their holding boxes.

d. Positioning: A carpet bombing attack must utilize all six heavy bomber units; positioned so that each bomber counter is adjacent to at least two other bomber units. The pattern of bomb hexes may be positioned anywhere providing any one hex of the six-hex pattern falls within the previously cited hex location.

e. Effects: Carpet bombing causes the following effects:

1) A unit or stack of units in a hex containing a heavy bomber unit must undergo an attack at 5-1 odds. No die roll adjustment is made for terrain or other causes. Heavy bomber units are not affected by the outcome. Retreating German units may ignore the effects of the heavy bomber units.

2) All units entering a hex containing an inverted heavy bomber unit undergo a '+2' movement point penalty in addition to the cost of entering other terrain in the hex.

3) All units that are attacked are automatically disrupted for the remainder of the turn.

f. Carpet bombing attacks cannot be executed if such execution forces the heavy bomber counters to be placed in hexes containing Allied units.

STOP! READ NO FURTHER!
PLAY SCENARIO THREE.

IV. SCENARIO #4: THE FALL OF CHERBOURG

A. NAVAL BOMBARDMENT

1. Availability: The Allied player has available *naval gunfire strength points* which may be used against enemy units. These are represented by the boxes on the *Allied Naval Gunfire Control Display:*

a. The numbers printed in the boxes on the chart represent the number of strength points available EACH turn. (Ignore the rocket, 'R', boxes which are used only in the invasion scenarios.) The strength points in each box must be applied to a single target hex as a whole. They cannot be split between two different target hexes.

b. Nationality: British and U.S. naval strength points may not be combined to bombard the same target hex. Similarly, German targets adjacent to U.S. units (or on U.S. beaches) may not be bombarded by British strength points, or vice-versa. Where German targets are adjacent to BOTH U.S and British units, either U.S. or British (but not both) naval strength points may be used to bombard.

2. Bombardment: During the air/naval phase, the Allied player may bombard German target units by simply applying the desired number and type of naval strength points against a target hex and rolling one die on the *Bombardment Table.* Expended strength points are sub-

tracted from the total by sliding the indicator counter along the row of strength point boxes.

a. To be bombarded, a target hex must be either adjacent to an Allied combat unit or adjacent to a sea hex.

b. All units in the same target hex are treated as one combined target and undergo the same bombardment effect.

c. See the additional instructions on the *Bombardment Table.*

3. Effects: Successfully bombarded target units are disrupted until the end of the current turn. Place a 'DISRUPT' marker on the disrupted units.

4. RANGE: Each type of naval gunfire strength point (BB, CA and DD) has a limited range in hexes which is listed on the naval display. This range is counted from any sea hex containing a BEACH or PORT LANDING BOX. It may not be counted from any other type of sea hex.[22]

B. FORTIFICATIONS

The several different fortification types in the game represent the myriad varieties of permanent and temporary fortifications built and used along the Atlantic Wall and in the Normandy campaign.

1. There are five main types of fortifications: 'fortified areas', representing major defensive complexes; 'minor forts', representing the old stone forts in the Cherbourg environs; 'coastal strongpoints', representing German *widerstandnest* and *stutzpunkt* defensive works in the Atlantic Wall; 'field fortifications' representing field works and fields-of-fire; and *Landfronte* fortifications representing the *Landfronte* defensive line around Cherbourg. See the *Fortifications Chart* for a detailed listing of characteristics.[23]

2. All fortifications, except 'field', are positioned at the start of the game in the predetermined hex locations printed on the mapboard.

3. Units in fortifications exercise a zone of control into all or some of the six adjacent hexes (see chart).

4. Units in fortifications are never forced to retreat as a result of combat UNLESS they have been previously disrupted in the same turn.

5. When DEFENDING, units in fortifications are treated as ARMOR for combined arms modifier purposes.

6. Units are considered to be 'in' a fortification by being placed physically UNDER the fortification counter. Units on top of the counter gain NO benefit from it. The number of strength points on top of and under a fortification counter cannot exceed the strength point capacity for that hex. (Note that for a coastal strongpoint, NO units may be placed under it.)

7. A fortification (except 'field' type) remains on the mapboard indefinitely unless and until all of the units under it are destroyed in the same turn. When this happens, the fortification counter is removed from the mapboard.

8. Fortifications do not count towards nor affect stacking limitations in any way.

9. A unit under a fortification counter suffers losses and step-reductions in the normal manner.

10. Building Field Fortifications: Any infantry- or armor-type unit of BATTALION size (except headquarters) may build field fortifications:

a. A field fortification may be built by a unit occupying any TOWN (*not* city) hex. It may not be built on a hex already containing any other fortification.

b. Field fortifications require two turns to build. During the replacement phase, the owning player places an inverted field fortification counter in the building unit's hex. During the replacement phase of any succeeding turn, the fortification counter is turned face-up and becomes fully functional.

c. The combat unit building the fortification may not move or attack nor may it be adjacent to any enemy units during the two player segments required to build. An inverted field fortification counter is immediately removed from play whenever an enemy unit moves adjacent, or whenever the building unit moves out of the hex or attacks.

d. A functional field fortification is removed from the mapboard whenever all of the units under it are destroyed in one turn or whenever it is not occupied by at least one friendly combat unit at the end of a regular or mech movement phase.

STOP! READ NO FURTHER! PLAY SCENARIO FOUR.

V. SCENARIO #5: NORMANDY BEACH

A. FIRST TURN INVASION SEQUENCE OF PLAY

For the 6 June turn ONLY, the following special invasion sequence of play is used. Revert to the normal sequence of play for all subsequent turns:

1. ALLIED PLAYER SEGMENT

a. Allied Air Drop Phase: Position airborne units in their drop zones, execute drift determination and resolve drift combat.

b. Allied Air/Naval Phase: Same as regular sequence.

c. Allied Beach Assault Phase:

1) Allied player places assault wave units on landing boxes.

2) German player executes coastal artillery fire against landing boxes.

3) Allied player executes and resolves beach assault combat situations.

d. Allied Follow-up Movement Phase:

1) Allied player moves all assault wave units up to HALF normal MA.

2) Allied player introduces follow-up wave units, moving them full MA.

e. German Mechanized Movement Phase: Same as regular sequence.

f. German Defensive Fire Phase: Same as regular sequence.

g. Allied Combat Phase: All Allied units—including those that attacked in previous phases, may initiate and resolve ground combat.

2. GERMAN PLAYER SEGMENT

a. German Movement Phase: Same as regular sequence.

b. Allied Build-up Movement Phase: Allied player introduces build-up wave units, moving them up to HALF their normal MA.

c. Allied Defensive Fire Phase: Same as regular sequence.

d. German Combat Phase: Same as regular sequence.

e. Reset Phase: Same as regular sequence.

B. AIRBORNE LANDINGS

Allied airborne units enter the game via the air drop procedure which consists of three steps: placement, drift, and drift combat:

1. During the designated turn of entry, airborne units are transferred from the *Assault Landing Schedule* card and placed on the mapboard during the Allied air drop phase.

2. Airborne units must be positioned in their proper drop zone hexes on the mapboard as indicated on the airborne section of the *Assault Landing Schedule.*

3. After completing initial placement, each individual airborne unit must undergo the effects of drift.[24] Referring to the Drift Diagram[25] printed on the *Assault Landing Schedule,* roll one die for each unit and move that unit to the hex that corresponds to the number rolled. Make certain the 'north' orientation of the diagram matches that of the mapboard. If the unit drifts out of the drop zone hex, roll a second time on the *Dispersal Table* to determine losses, if any.

a. Any unit that drifts off the mapboard, into sea hexes, into prohibited hexes, or onto hexes containing friendly units in violation of stacking limitations is automatically eliminated from play.

b. For GLIDER and HEADQUARTERS units, subtract '2' from the die roll number for drift.

c. Add '2' to the die roll number for drift if an enemy unit occupies the drop zone hex.

4. Drift Combat: If the final position of an airborne unit is an enemy occupied hex, a 'drift combat' situation exists. All such drift combat situations are resolved like regular attacks at the end of the air drop phase. Airborne artillery units engage in drift combat in exactly the same manner as airborne infantry units.

a. Determine combat odds as normal. Note, however, that only those opposing units in the same hex are counter. Units in adjacent hexes are ignroed for drift combat purposes. The Allied units are always the attacker; the German units always defend.

b. Automatically subtract '1' from the die roll result of all drift combat situations.

c. SPECIAL: If a retreat is called for on the *Combat Results Table,* for either the attacker or the defender, the retreating unit is allowed to move to an adjacent hex unless that hex is in the zone of control of an enemy unit, or it contains an enemy unit counter. Units that cannot retreat are eliminated. If no retreat is called for on the *Combat Results Table* for either side, then ALL units involved in that combat on BOTH sides are eliminated instead.

5. Airborne units may not engage in any other type of movement during the Allied player segment.

6. Airborne units scheduled to air drop on subsequent turns do so during the Allied Replacement Phase.

7. SPECIAL: During the invasion turn, airborne units land during the airdrop phase AND the build-up phase. Units landing during the build-up phase are positioned and drifted FIRST, before other build-up units enter the game and move.

C. AMPHIBIOUS ASSAULT

The *Allied D-Day Assault Landing Schedule* outlines the entire first-turn allocation of units for the Allied player. The assaulting units, their exact beach landing box location, and their phase of entry, are all pre-determined.[26] The amphibious assault process consists of a multi-phase procedure explained below:

1. Allied units enter the game by being transferred from the player-aid card to the landing boxes printed on the mapboard. Allied units may not remain in a landing box at the end of a turn, but must either move to the connecting coastal hex or return to the player-aid card.

2. Beach Assault: During the beach assault phase, the Allied player positions his assault wave units on the eact beach landing boxes indicated on the *Assault Landing Schedule*. Assault wave units, unlike subsequent waves, must be positioned in the EXACT beach landing boxes indicated on the landing schedule:

a. During the beach assault phase, Allied assault units must be moved from the landing boxes to the connected coastal hex. They may move no further in that phase. (NOTE: Beach assault units which cannot land due to stacking limitations may be returned to the player aid card and reenter during the follow-up movement phase. The Allied player chooses exactly which units return to the player aid card.)

b. If enemy units occupy the connected coastal hex, they must be eliminated or forced to retreat during the beach assault phase to allow units in the landing boxes to advance after combat:

1) Units in landing boxes may attack enemy units on the connected coastal hexes by themselves, or in conjunction with other assault wave units that moved to adjacent coastal hexes.

2) Combat is resolved normally. Victorious units may NOT advance beyond the connected coastal hex.

3) If the attack fails to remove all defending units from the coastal hex and thus does not allow the units in the landing box to advance after combat, those units must remain in the landing box until the build-up phase at which time they are removed from the mapboard and returned to their boxes on the *Assault Landing Schedule*. They may land as build-up units in subsequent turns.

c. Allied assault wave units that move successfully from the beach landing box to the connected coastal hex automatically create a beachhead (BH) marker in that landing box at the end of the phase. EXCEPTION: No beachhead marker is ever placed on the POINTE DU HOC landing box.[27]

d. SPECIAL: Allied assault-wave units suffer DOUBLE the normal casualties in combat during the beach assault phase. Treat all 'LS' results as 'L1', all 'L1' results as 'L2' and all 'L2' results as 'E'.

3. Follow-up Movement: During the follow-up movement phase, the Allied player may, at his option, transfer the follow-up wave units from the player aid card to those beach landing boxes containing beachhead markers:

a. At the beginning of the follow-up movement phase, all assault wave units on coastal hexes may move up to HALF their normal movement allowance, (rounded down) at the Allied player's option.

b. After all assault wave units have been moved, the Allied player may transfer the follow-up wave units for each individual beach from the player aid card to any beach landing boxes with BH markers within the proper beach. Follow-up and build-up units designated for one beach cannot be landed at another during the invasion turn. (If there are no beachhead markers in any BLB's of a beach due to adverse combat results, units designated for entry at that beach may land as build-up units at any other beach of the same nationality in subsequent turns.)

c. Follow-up and build-up units directed to a beach do not have to enter through specific beach landing boxes, but may land at any beachhead marker within their designated beach. An unlimited number of units may enter the game through a beachhead marker. (NOTE: This is modified in the campaign game!)

d. Follow-up wave units may be moved up to the limit of the movement allowance during the follow-up movement phase, at the Allied player's option.

4. Allied Combat Phase: During the Allied combat phase, ALL combat units landed during the air drop, beach assault, and follow-up movement phases may attack (including those that may have already attacked during the beach assault and air drop phases.)

5. Allied Build-up: During the build-up movement phase, the Allied player may, at his option, transfer the build-up wave units from the player aid card to those beach landing boxes containing a beachhead marker.

a. Build-up units may only land if ALL follow-up units belonging to their designated beach were landed during the follow-up movement phase. If any follow-up units remain on the player aid card which are to enter on that beach, no build-up units may land on that beach until the remaining follow-up units have landed in subsequent turns.

c. Units entering the game during the build-up movement phase may expend only HALF their normal movement allowance (rounded down) in that phase. Units that entered previously may not move during that phase.

d. NOTE: There are no build-up units from SWORD BEACH.

6. Further Build-up: On subsequent turns, incoming units are transferred from the player aid card to beachhead landing boxes during the Allied replacement phase. They are positioned on the landing boxes during the replacement phase and moved during the regular movement phase. There is no stacking limit for units on landing boxes.

a. Incoming units may only expend HALF their normal movement allowance during their first turn on the mapboard.

b. Incoming units may not remain on a landing box at the end of Allied movement phase. They *must* move to a connected coastal hex or be returned to the player aid card.

7. Beachhead Markers: Beachhead markers may only be created by successfully assaulting units during the beach assault phase. Allied units that follow may only move to coastal hexes via landing boxes containing beachhead markers.[28] (EXCEPTION: Port Landing Boxes: see campaign game rules)

a. Beachhead markers may never be moved from their original landing box.

b. A beachhead marker is destroyed and removed from the game whenever an enemy combat unit enters the coastal hex with which it is connected.

D. INVASION TURN SUPPLY REQUIREMENTS

During the invasion turn, Allied and German units are automatically supplied for attack, defense, artillery fire and movement. Neither side expends supply nor must they trace a supply route to an HQ unit.

E. GERMAN COASTAL ARTILLERY

Historically, coastal artillery guns were designed to engage naval targets at sea, exclusively. They were not equipped to act as field artillery against an enemy force already ashore. German coastal artillery units were a major potential threat to the invading Allied forces:[30]

1. German coastal artillery batteries are positioned on the mapboard in those hexes containing the printed coastal artillery symbols. Only those units with the coastal artillery symbol may function in that role.

2. Each coastal artillery unit may only fire at Allied units in beach or port landing boxes.

3. During the invasion turn, coastal artillery units fire during the Allied beach assault phase. On all subsequent turns, coastal artillery units fire at the end of the Allied air/naval phase after the Allied player is finished moving and firing his air and naval counters in that phase.

4. Each coastal artillery unit may fire at ALL enemy units that occupy beach or port landing boxes within range during a single phase:[31]

a. Coastal artillery fire is resolved on the *Bombardment Table*. Each coastal artillery strength point is equal to one naval gunfire strength point. A 'D' result against a landing box means that all of the units in it suffer an immediate one-step loss ('L1') and are disrupted until the end of the turn. Supply units are inverted to half-strength, but may be used normally in the same turn.

b. Each coastal artillery unit may attack each and every beach or port landing box within range, individually. Each landing box, however, may be attacked only ONCE per turn. Therefore, coastal artillery strength points firing into a landing box must be totalled into one combined strength for resolution on the Bombardment Table. SPECIAL: During the invasion turn, German coastal artillery units may fire upon each landing box during the Allied beach assault phase, the Allied follow-up phase, and the Allied build-up phase. Each landing box, however, may be attacked only once per phase.

5. Coastal Artillery Supply: Coastal artillery units are considered to be in supply at all times. They do not consume supply nor are they required to trace a supply route to an HQ unit.

F. SPECIAL ALLIED ASSAULT UNITS

The Allied player is provided with ten special unit counters called 'RMSR' units ('Royal Marine Support Regiment').[29] These are used on the British beaches to increase the effectiveness of British attacks:

1. RMSR units are treated as normal armored-type combat units.

2. Each RMSR unit adds '+1' to the die roll of attacks against enemy units in which they participate during the invasion turn only.

3. RMSR units are permanently removed from the mapboard at the conclusion of the invasion turn.

G. SPECIAL ARMORED UNITS: THE 79th ARMORED DIVISION, ETC.

The British 79th Armored Division was not an operational armored division, as such, but rather a collection of specialist armored formations. It was a group of independent GHQ battalions provided with a divisional organization to handle administration and training.[32] Throughout the campaign in northwestern Europe, their special skills contributed greatly to Allied tactical success. The special armored types contained in the division are described as follows:

1. Divisional Functions: Battalions belonging to the 79th Armored Division are INDEPENDENT battalions for supply functions. There is NO divisional headquarters unit for these battalions. NOTE: Certain types of special armored units have U.S. counterparts. These U.S. independent armored battalions follow the same rules as outlined for British special armored units.

2. AVRE Units: 'Armored Vehicles, Royal Engineers' (A.V.R.E.) were *Churchill III* and *IV* tanks mounting a 290mm Petard spigot mortar and other combat engineering equipment used to destroy enemy fortifications. These unique units have the following characteristics:

a. An AVRE unit adds '2' to die roll result whenever it attacks any type of enemy fortification in conjunction with other types of combat units. No more than '2' may be added to the die roll for any single attack regardless of the number or type of special armored units involved.

b. An AVRE unit is ignored for Combined Arms Modifier purposes unless it is in a hex without other types of combat units. When alone, an AVRE unit automatically gives the *opposing* side a '2' C.A.M. advantage, *regardless* of the actual composition of the enemy force.

c. An AVRE unit may never replace step losses, nor does it have a remnant step. It does, however, retain its special function at either full or inverted strength.[33]

3. Flamethrower Units: The 'Crocodile' Flamethrower battalions of the British 141st Armored Regiment were equipped with regular gun-armed *Churchill VII* tanks modified to carry an internal flamethrower and tow an armored trailer. They were very effective infantry-support weapons:

a. A Crocodile unit adds '2' to the die roll result whenever it attacks any type of enemy fortification in conjunction with other types of combat units. No more than '2' may be added to the die roll for any single attack regardless of the number or type of special armored units involved.

b. When a Crocodile unit attacks with at least one INFANTRY-type unit against enemy units in a BOCAGE hex, '2' is added to the die roll result for that attack.

c. Whenever a Crocodile unit is involved in combat with at least one friendly infantry-type unit, the Combined Arms Modifier is DOUBLED (i.e., '+2' becomes '+4', and '-2' becomes '-4.)

d. A Crocodile unit may never replace step losses, nor does it have a remnant step. It does, however, retain its special functions at full or inverted strength.

4. Sherman 'Crabs': 'Crabs' were regular gun-armed Sherman tanks equipped with mine-clearing flails used to clear safe lanes through minefields. To reflect this capability, allow units involved in an attack to advance INTO AND THROUGH a town or city hex IF a Crab unit involved in the attack first enters and remains in that hex. Each Crab unit neutralizes the inhibiting effects of one town or city hex for all units advancing after combat, providing that the Crab unit remains in the hex and advances no further after combat. Sherman Crab units may absorb replacements normally and retain their special function at full or inverted strength.[34]

5. Amphibious Tanks: Certain Allied armored battalions were equipped with Sherman tanks specially modified for amphibious operations. These were called 'Duplex Drive' (or DD, for short) tanks. They had certain advantages and disadvantages as outlined below:

a. When evaluating the die roll results of coastal artillery fires against landing boxes, subtract '2' from attacks against any DD Units in the landing box. Evaluate other non-DD units in the landing box normally.

b. Calamity Table: During the beach assault phase, after the German player has executed all coastal artillery fire, the Allied player must roll one die on the *DD Calamity Table* for each DD unit on a landing box to determine if the unit suffers any losses during landing.

c. If a DD armored units suffers losses on the table, they are extracted immediately. Units suffering losses on the table are AUTOMATICALLY disrupted until the end of the Allied player segment.

VI. THE SCENARIOS

Each of the five scenarios is a complete, self-contained game. Each scenario illustrates a significant phase of the Normandy campaign. Additionally, each scenario is keyed to a corresponding rules section within the main body of the rules as explained in the introduction. The scenarios are organized in the following format:

A. SCENARIO ORGANIZATION

1. Historical Capsule: Briefly states the situational background, the history, when and where it occurred, and the historical outcome.

2. Mapboard Area: Shows what sections of the mapboard are used to play that particular scenario. This in turn defines the 'mapboard edge' for the scenario.

3. Game Length: States the number of game turns and the historical starting dates for that particular scenario.

4. Set-up For Play: Refers players to the appropriate set-up map. Indicates which player sets up his units first.

5. Reinforcement Entry Schedule: Lists when and where reinforcing units enter play.

6. Supply Schedule: Lists number and entry location of each side's supply units. Supply schedules begin on the first turn of each scenario.

7. Air Power: Lists the available Allied tactical and heavy bombardment air units, if any, for that particular scenario.

8. Naval Bombardment: States the amount of naval bombardment allowed, if any, for that particular scenario.

9. Victory Conditions: Provides the criteria for determining which player wins a particular scenario. Note that in some scenarios a DRAW result is possible.

10. Special Rules: Rules applicable ONLY to the specific scenario in question are presented in this section.

11. Available Units: Illustrates the exact units to be used in each scenario. Notations under the individual unit diagram indicate whether the units are at full or inverted ('INV') strength. Whenever a remnant ('REM') unit is employed, the designation of the unit it is replacing will appear underneath its counter symbol.

B. UNIT INITIAL PLACEMENT AND ENTRY

1. Prior to play, units labelled 'At Start' are positioned on the mapboard within the areas drawn on the set-up map. Units that are set-up on the mapboard must obey stacking rules and other placement limitations.

2. A unit's set-up position may be delineated in one of three ways:

a. Exact hex locations are shown directly on the set-up map via counter diagrams. Units identified as such MUST be set up on those exact hexes.

b. Divisional areas, labelled with the name of the division and its symbol, show where the subordinate units of a particular division must be placed. All units of that divisional HQ that are not otherwise shown as an exact-hex location must be positioned within the divisional area.

c. Units labelled as 'Anywhere' may be positioned on or enter the game through any hex that is within 'friendly territory.' Such friendly territory is delineated from 'enemy territory' by the red line separating the opposing forces.

3. A German unit that is labelled 'As per Starting Set-up' must be positioned in the hex that contains a particular unit's exact counter symbol and designation.

4. A unit that is specified as entering play on a certain turn must enter the mapboard on or after the indicated turn of arrival. EXCEPTION: Allied airborne units MUST enter the game on their exact turn of entry as specified on the *Allied Assault Landing Schedule.*

5. Units that arrive during play enter the mapboard sequentially. That is, each unit enters and moves individually, in turn. Any number of units may enter through the same hex and still use their full movement allowance.

6. The term 'With all Units of Full Strength' means that all subordinate units belonging to a HQ unit appear with it at full uninverted strength.

7. The '×3', '×9', etc, notations below certain unit counter diagrams direct players to include the stated number of that type in the available units in that scenario.

SCENARIO ONE: MORTAIN

MAPBOARD AREA: Use mapboard section 'F', only.
GAME LENGTH: Four turns; 6 August through 9 August. (see special rule below.)
SET-UP FOR PLAY: See scenario #1 set-up map on back of *Allied Assault Landing Schedule* card. U.S. player sets up FIRST.

SUPPLY SCHEDULE: None.
AIR POWER: None.
NAVAL BOMBARDMENT: None.
VICTORY CONDITIONS:

German: German player wins by occupying the hexes containing St. Pois and St. Hilaire at the end of the 9 August turn.

Allied: Allied player wins by occupying BOTH hexes containing the city of Vire at the end of the 9 August turn.

NOTE: The game is considered to be a draw if both players achieve their victory conditions or if NEITHER player achieves his victory conditions.

SPECIAL RULE:

The game begins with the GERMAN player segment of the 6 August turn. There is no Allied first turn player segment.

AVAILABLE UNITS:

See the scenario #1 set-up map on the back of the *Allied Assault Landing Schedule* card.

REINFORCEMENT ENTRY SCHEDULE:

UNIT	TURN	ENTER VIA
35 Inf. Div. (US)	7 August	West edge, via road 'EE' or 'FF'.
CCA, 3 Arm Div. (US)	7 August	North Edge; from road leading into Granville.
CCA, 2 Arm Div. (US)	7 August	South edge; via road 'AA'.
CCB, 2 Arm Div. (US)	8 August	South edge; via road 'AA'.

SCENARIO TWO: THE FALAISE POCKET

MAPBOARD AREA: Use mapboard section 'G', only.
GAME LENGTH: Five turns; 17 August through 21 August.
SET-UP FOR PLAY: See scenario #2 set-up map on back of *Allied Unit Entry Track* card. German player sets up first.

AIR POWER: None.
NAVAL BOMBARDMENT: None.
VICTORY CONDITIONS:

Each German headquarters unit is worth five victory points and each German combat or remnant unit is worth one victory point. The German player receives victory points for those German unit types described above that exit the EAST edge of the mapboard before the end of the 21 August turn. The winner of the game is determined at the end of the last game turn:
German: German player wins if he accumulates at least 200 victory points at the end of the game.

SPECIAL RULES:

1. The U.S. 30 Infantry Division must be removed from play at the beginning of the Allied player segment of the 19 August turn. Remove the HQ unit and all subordinate units, including any remnant counters substituted for 30 Infantry Division units. Any accompanying supply units, however, may remain in play.

2. Historically, the U.S. 4 Armored Division was maintained as a reserve in the VII Corps sector until 23 August. Its units may set-up anywhere within its assigned area but they may not move or engage in any type of combat unless attacked by German ground units or artillery or unless German units enter its set-up area.

3. The German *IIss Panzer Korps* units (including the *9ss* and *2ss Panzer Divisions*) scheduled to enter play on 20 August may be withheld from the game at the German player's option. If withheld from play, they DO count as units exited for German victory point purposes.

4. German units may voluntarily leave the mapboard if they move into any east edge hex with at least one movement point remaining. The German player simply removes them from the mapboard, announcing that they have been evacuated, and tallies their victory point value.

5. SPECIAL RULE CHANGE: Due to a fuel shortage in the 'pocket', ALL German movement allowances are reduced to '1' during the German mechanized movement phase.

AVAILABLE UNITS:

See scenario #2 set-up map on the back of the *Allied Unit Entry Track* card.

REINFORCEMENT ENTRY SCHEDULE:

UNIT	TURN	ENTER VIA
30 Inf. Div. (US)	19 August	Remove unit from play.
2ss Panzer Div.	20 August	Anywhere along east edge of mapboard.
9ss Panzer Div.	20 August	Anywhere along east edge of mapboard.

SUPPLY SCHEDULE:

SIDE	RATE PER TURN	ENTRY SOURCE
Allied	Four units.	Anywhere along north or west edge.
German	One unit.	Anywhere along east edge.

SCENARIO THREE: OPERATION COBRA

MAPBOARD AREA: Use mapboard sections 'A', 'B', 'C' and 'F', only.

GAME LENGTH: Seven turns; 25 July through 31 July.
SET-UP FOR PLAY: See scenario #3 set-up map on the back of the *German Strategic Movement Track* card. German player sets up first.

VICTORY CONDITIONS:

Allied: Occupy all three city hexes of AVRANCHES and the PONTAUBAULT town hex at the end of the 31 July turn with at least one combat unit each. OR: Occupy both city hexes of MORTAIN and both city hexes of VIRE at the end of the 31 July turn with at least one combat unit each.

German: Avoid the Allied victory conditions.

SPECIAL RULE:

Allied supply units may start in either Carentan hex at the beginning of the Allied player segment. They may each be positioned and moved in turn without regard to over-stacking in the city hexes.

AVAILABLE UNITS:

See the scenario #3 set-up map on the back of the *German Strategic Movement Track* card.

REINFORCEMENT ENTRY SCHEDULE:

UNIT	TURN	ENTER VIA
XLVII Panzer Corps 2 Panzer Div.	27 July	East edge, along Conde-Vire road.
29 Inf. Div. (US)	28 July	Set up and move on Carentan-St. Mere-Eglise road.
28 Inf. Div. (US)	28 July	Set up and move on Carentan-St. Lo. road.
6 Arm. Div. (US)	28 July	Set up and move on Lessay-St. Sauver road.
116 Panzer Div.	29 July	East edge, anywhere south of Vire.
394 StuG Brigade	30 July	West edge; via road hex 'EE' or 'FF'.
II F.S. A.u.F. Reg	30 July	

SUPPLY SCHEDULE:

SIDE	RATE PER TURN	ENTRY SOURCE
Allied	Eight units.	Directly on either side of Carentan.
German	Four units.	Any east edge road hex.

SCENARIO FOUR: THE FALL OF CHERBOURG

MAPBOARD AREA: Use mapboard section 'A', only.

GAME LENGTH: Seven turns; 19 June through 25 June.

SET-UP FOR PLAY: See scenario #4 set-up map on the back of the *Combat Results Table/Terrain Effects Chart* card. German player sets up first.

AIR POWER:

Tactical: FIRST TURN ONLY: Full U.S. and British complement as listed *Allied Aircraft Deployment Display*. SUBSEQUENT TURNS: Only the air units listed on the Cherbourg scenario set-up chart may be used. These are all U.S. air units.

Heavy Bombardment: NONE.

NAVAL BOMBARDMENT:

The Allied player may use naval bombardment only ONCE during the game. He may use naval bombardment during any single game turn providing he has announced his intention to use it one turn in advance. This naval bombardment is limited to the types and amount of naval fire listed below.

VICTORY CONDITIONS:

Allied: The Allied player wins by occupying any five city hexes in CHERBOURG-OCTEVILLE with Allied combat units simultaneously for one complete turn before the end of the 25 July turn.

German: The German player wins by avoiding the Allied victory conditions.

SPECIAL RULES:

1. The red stars on the mapboard refer to additonal unit placements as indicated on the special *Cherbourg Initial Set-up Map,* printed on its own separate sheet. All fortifications indicated on the map are used in this scenario. NOTE: *Fort du Roule* is indicated by the notation 'ROUL'.

2. German coastal artillery units may NOT fire as regular artillery in scenario #4; they function in a DEFENSIVE capacity only, using their defense strength.

3. HISTORICAL NOTE: The German LXXXIV Korps HQ unit was not actually present during the Cherbourg campaign. It is used in this scenario to represent the local command apparatus which was later elevated to a corps-like fortress command *(Gruppe von Schlieben).*[19]

AVAILABLE UNITS:

See the Scenario #4 set-up map.

REINFORCEMENT ENTRY SCHEDULE:

None.

SUPPLY SCHEDULE:

SIDE	RATE PER TURN	ENTRY SOURCE
Allied	Three units.	South edge, on Valognes-Carentan road hex.
German	NONE.	n/a

SCENARIO FIVE: NORMANDY BEACHHEAD

MAPBOARD: Use the entire mapboard.

GAME LENGTH: Three turns; 6 June through 8 June.

SET-UP FOR PLAY:

Allied: All first-turn assault units are listed and organized on the *Allied Assault Landing Schedule.* Note that certain airborne units on the schedule arrive during the 7 June turn.

German: All units that begin the game on the mapboard have their counter symbol and designation printed directly on the mapboard.

AIR POWER:

Employ all units in the *Allied Aircraft Deployment Display except Heavy Bombardment units.*

NAVAL BOMBARDMENT:

Employ all types of naval gunfire boxes as indicated on the *Allied Naval Gunfire Display.*

VICTORY CONDITIONS:

Each of the following listed city/towns is worth one victory point to the Allied player if at least one hex is occupied by an Allied combat unit at the end of the 8 June turn. Likewise, the German player is awarded one victory point for each city/town that contains NO Allied combat units at the end of the 8 June turn. The city/towns are:

1. MONTEBOURG
2. CARENTAN
3. ISIGNY
4. BAYEAUX
5. CAEN
6. RANVILLE (NE of Caen)

Allied: The Allied player wins by accumulating more victory points than the German player at the end of the game.

German: The German player wins by accumulating more victory points than the Allied player at the end of the game.

Draw: The game is a DRAW if both sides accumulate an equal number of victory points at the end of the game.

SPECIAL RULES:

1. Use the special Invasion Sequence of Play for the 6 June turn.

2. The *30 Flak Regiment* and the *932 Flak Battalion,* initially positioned in the Cherbourg area, may not be moved until the 8 June turn.

3. Subordinate units of the German *71 Infanterie Division* listed on the special box on mapboard 'E' may enter the game via a special die roll during the German player segment. Roll one die for each uncommitted unit once each turn beginning on the 6 June turn. A die roll equal to or greater than the 'activation number' printed beneath each unit allows that unit to enter the game as described in the box.

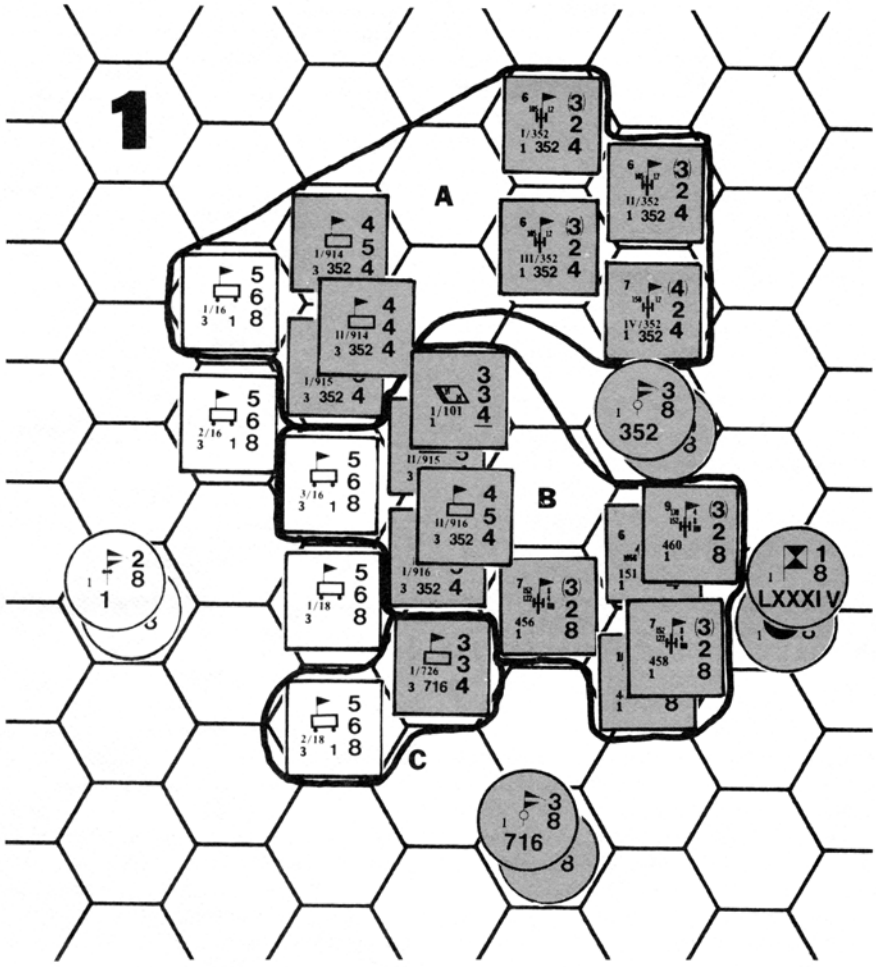
REINFORCEMENT ENTRY SCHEDULE:

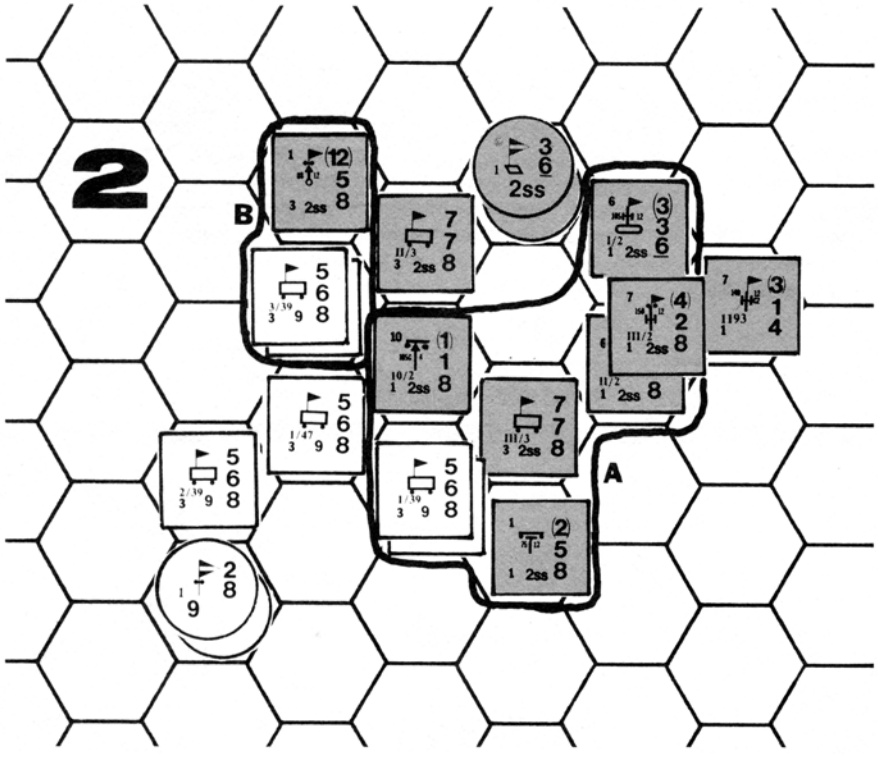
UNIT	TURN	ENTER VIA
German:		
12ss Panzer Div.	7 June	Anywhere along east edge of mapboard.
346 Inf. Div.	7 June	Any road hex 'A' through 'D' on east edge.
Iss Panzer Korps	8 June	Anywhere along east edge of mapboard.
Allied:		
2 Inf. Div. (US)	7 June	Via beach landing boxes.
12/DEV Batt. (BR)	7 June	Via beach landing boxes.
2 Arm. Div. (US)	8 June	Via beach landing boxes.

SUPPLY SCHEDULE:

	RATE PER TURN			
SIDE	6 June	7 June	8 June	ENTRY SOURCE
Allied	3 units.	5 units.	5 units.	Via beach landing boxes.
German	4 units.	7 units.	NONE.	Anywhere along east edge.

VII. EXAMPLES OF PLAY





EXAMPLE #1: COMBAT, SUPPLY, AND CONTROL: The German *352 Division* attacks the American 1 Infantry Division, supported by elements of the German *716 Division.*

ATTACK A: The three battalions are supported by the four battalions of the divisional artillery. All units are supplied by the *352 Division* HQ. Odds for the attack are 25 to 6 which converts to 4-1. Supply consumption: half of a supply unit expended for the ground attack and another half expended for the artillery support for a total of one full supply unit.

ATTACK B: The three battalions attack the 3/16 battalion with the support of the 1/101 Tiger company and five battalions of non-divisional artillery. The infantry battalions and the *Tiger company are supplied by the 352 Division* HQ and the five artillery battalions are supplied from the *84 Korps* HQ unit. Odds for combat are 30 to 6 which converts to 5-1. Supply consumption: *352 Division:* NONE [it has already expended its required supply in Attack A]. *84 Korps:* half of a supply unit.

ATTACK C: The 1/716 battalion of the *716 Division* attacks the US 2/18 battalion, supplied by the *716 Division* HQ. Odds for combat are 3 to 6 which converts to 1-2. Supply consumption: NONE [only one unit of the division is attacking.]

EXAMPLE #2: DEFENSIVE FIRE: Artillery units of the German *2ss Panzer Division* engage in defensive fire against elements of the US 9 Infantry Division.

ATTACK A: The *I/2, II/2 and III/2* divisional artillery battalions and the *2ss* towed antitank battery attack the US 1/39 infantry battalion. All units are supplied by the *2ss Panzer Division HQ.* Odds for the attack are 13 to 6 which converts to 2-1.

ATTACK B: The *2ss Flak* battalion attacks the 3/39 battalion at odds of 12 to 6 or 2-1. The attack is supplied by the *2ss Panzer Division* HQ.

For both attacks, only one half of a supply unit is consumed by the *2ss Panzer Division* HQ.

SPECIAL NOTES:

1. Notice that the German *1193 Artillerie Battalion* cannot participate in the attack using the 2ss Panzer Division HQ because only non-artillery independent units may be supplied by a divisional HQ unit.
2. The US 2/39 battalion cannot be attacked by any defensive fire because it is not adjacent to any German units.
3. Notice that in each of the above attacks only one unit in each of the defender's hexes is being attacked.

VIII. SCENARIO ADDENDA

The following additions will allow players to utilizes the entire rules package for the earlier scenarios. All advanced and campaign game rules may be used, as applicable:

A. SCENARIO ONE: MORTAIN

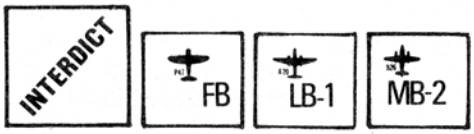
1. Supply: Add one full-strength supply unit to the order of battle for each division and corps HQ unit that appears in the game. Additionally, place one full strength Allied supply unit in the town of MESNIL TOVE.

2. Supply Schedule:

SIDE	RATE PER TURN	ENTRY SOURCE:
Allied	four units.	Anywhere along north edge.
German	six units.	Anywhere along east edge.

3. Air Power:

a. Tactical: Use only the following air units—



×3 ×6 ×3 ×3

b. Heavy Bombardment: NONE.

4. Naval Bombardment: NONE.

5. Weather: Use campaign game weather cycle charts. Weather is automatically FAIR for the first game turn.

B. SCENARIO TWO: FALAISE POCKET

1. Air Power: Use full U.S. and British air complement as listed on the *Allied Aircraft Display*. Do not, however, use any Heavy Bombardment units.

2. Weather: Use campaign game weather cycle charts. Roll one die (with NO modifications) to determine weather for the first turn.

C. SCENARIO THREE: COBRA

Weather: Use the campaign game weather cycle charts. Weather is automatically FAIR for the first game turn.

D. SCENARIO FOUR: CHERBOURG

No additions required.

E. SCENARIO FIVE: NORMANDY BEACH

No additions required.

IX. THE CAMPAIGN GAME RULES

A. INTRODUCTION

The campaign game is the real 'meat' of the LONGEST DAY design system. The campaign game rules consist largely of a collection of 'systems' rules (which create a framework to support an extended game) and 'detail' rules (which address idiosyncracies in the history). Players should find these rules to be logical extensions of the rules previously used in the scenarios.

This is a long game. The first several turns take three to four times as long to complete as those in the middle of the game. Nonetheless, the structure of the design system should make the time spent enjoyable for all players regardless of the number of turns actually completed.

The campaign game represents a different type of play experience. Astute players will notice that the campaign game system is actually an inter-weaving of several distinct subsystems each rich in its own subtle interactions. Once players recognize and manipulate these interrelationships, they will achieve a deeper understanding of the game *and* the campaign. This game was designed to be analyzed, studied and dissected—as well as played. Enjoy.

B. CAMPAIGN GAME COMPONENTS

The campaign game player aides are centralized on the three triple panel cards. One card, containing the Allied naval and air displays and the assault landing schedule, was used in the scenarios. The other two, containing the Allied and German entry tracks and order of appearance schedules, are used only in the campaign game. To facilitate play, each player should organize his own units (at least those used in the first several turns) on the cards prior to the start of play.

C. WEATHER

One of the biggest intangibles in Allied planning for D-Day was the effects of weather. Unlike operations in the Pacific, the Western European Marine climate exposes amphibious operations to sudden weather changes. Furthermore, high annual average precipitation means frequent aircraft groundings during spring and early summer. As it was, the summer of 1944 was the wettest in recent history.[41] The climatic probabilities for this period can be re-created using the WEATHER CYCLE as follows:

1. At the beginning of each turn, the Allied player rolls one die and cross indexes the number rolled with the proper turn column on the *Weather Table* to generate a weather outcome. Place the weather marker in the proper box on the *Weather Record Track*.

2. On subsequent turns, modify the die roll result (as dictated by the *Weather Modifier Chart*) for the type of weather prevailing on the previous turn.

3. NOTE: Whenever the weather generated is storm (ST-1), the following turn is also AUTOMATICALLY storm (ST-2) weather. On the third turn, if storm would be rolled again, it would become ST-1, again followed by an automatic ST-2. This cycle would continue until a non-storm result is rolled. EXCEPTION: After the sixth consecutive storm turn, the weather will automatically become FAIR.[42] Also, any non-storm result following a ST-2 is automatically FAIR.

4. Effects: The effects of the weather are summarized on the *Weather Effects Chart*. The conditions indicated apply to the entire mapboard.

a. During OV-1 weather, only rail interdiction, strategic interdiction, and air supply missions may be executed. No allocations may be made to the carpet bombing box.

b. During OV-2 weather only strategic interdiction missions may be executed.

c. During ST-1, and ST-2 weather, port landing boxes (NOT *Mulberries!*) may be used at full debarkation capacities.

5. Consult the *Summary: Air Ops* chart for a complete listing of the effects of weather on air missions.

D. REPLACEMENTS AND REBUILDING REMNANTS

In the scenarios, units were reduced to inverted and remnant counter status. The following rules allow units to return to full strength conditions:

1. A replacement unit is a noncombat unit. It has a stacking value of '0' and may never exercise a zone-of-control. When alone in a hex, it is immediately removed from the mapboard whenever an enemy combat unit moves adjacent or into its hex.

2. There are two types of replacement counters; infantry and armor. This classification does not reflect their combat or movement capabilities, but indicates the type of units that they can rebuild:

a. *Infantry* replacements may be used to rebuild any type of battalion or company-sized non-motorized, motorized, or tracked infantry-function units.

b. *Armor* replacements may be used to rebuild any type of battalion or company-sized armor-function units.

c. Artillery-function units having inverted steps may NEVER be rebuilt.[43] Once inverted, they must remain inverted for the remainder of the game.

3. Replacement units are used to rebuild remnant units into inverted units and to rebuild inverted units into full-strength units. Replacement units are 'consumed' in the rebuilding process in a THREE-turn procedure:

a. A unit may begin the rebuilding procedure ONLY if it begins the friendly replacement phase in a supplied condition at least two hexes away from any enemy combat units and it occupies the hex with the proper type of replacement unit.

b. During a friendly replacement phase, the replacement unit is positioned on top of the unit to be rebuilt and then inverted.

c. During the following replacement phase, the combat unit is rebuilt by turning the combat unit face-up (or by replacing the remnant counter with the proper inverted counter).

d. A unit being rebuilt may not move or attack while the replacement unit remains on top of it. If enemy combat units move adjacent or attack, the combat unit defends normally but the replacement unit is *immediately* removed and returned to the pool without rebuilding, regardless of the outcome of the combat. If the unit being rebuilt moves or attacks, the replacement unit is similarly removed and returned to the pool. A replacement unit may not move once it has been inverted onto the unit being rebuilt.

e. At the end of the third consecutive replacement phase, the inverted replacement unit is removed and immediately returned to the replacement pool at which point it may be immediately redeployed to the entry track. The rebuilt combat unit may then move and attack normally in the same player segment.

4. A combat unit may only have one strength-step rebuilt at a time. A remnant unit must first be rebuilt to inverted status (and the consumed replacement unit removed) *before* it may begin the procedure to rebuild to full-strength status.

5. Disrupted units may not begin the rebuilding procedure. If a combat unit is disrupted during the rebuilding procedure, no rebuilding may take place and the replacement unit is immediately removed and returned to the pool.

6. SPECIAL: German *'F.E.'* (*'feld ersatz'* or field replacement) battalions were replacement units organic to German divisions. The German player may use a *'feld ersatz'* battalion as a regular combat unit OR it may be consumed as a replacement unit. When removed from the mapboard, however, it is not returned to the replacement pool but permanently removed from play.

7. SPECIAL: Whenever a headquarters unit

is destroyed, it is not eliminated but is immediately returned to play via each side's respective entry track:[44]

a. Allied: Destroyed Allied HQ units are immediately placed in the '10' entry box and may advance to the '9' box during the next Allied replacement phase. Allied divisional HQ units may be returned directly to the Allied player aid card in the event the Allied player desires to withdraw the division in question.

b. German: Destroyed German HQ units are immediately placed in the *BeNeLux* box on the strategic movement track and may attempt to move during the next German replacement phase.

c. NOTE: Divisional HQ units may only return to the mapboard if there is at least one undestroyed subordinate unit belonging to that division still physically on the mapboard during the replacement phase.

E. ALLIED UNIT ENTRY

1. On the first turn of the game, Allied units enter via the *Assault Landing Schedule* as in Scenario #5.

2. On subsequent turns, Allied units are positioned on the mapboard in either beach landing boxes containing BH markers or through port landing boxes containing functioning port markers.

3. Beach Landing Capacity: Each beach (Utah, Omaha, Gold, Juno, and Sword) has a specific capacity in terms of the maximum number of stacking points that may be positioned on the beach's landing boxes in a single replacement phase:

a. Each beach has a capacity equal to one stacking point per beachhead (BH) marker in that beach. During the first ten game turns, this capacity is TRIPLED to THREE stacking points per BH marker.

b. The total landing capacity of each beach may be landed at any one or more of the landing boxes containing BH markers in that beach. EXAMPLE: At the end of the first turn, Omaha beach has four BH markers in four landing boxes. The landing capacity for that beach is therefore TWELVE stacking points per turn, which may land at one or more of the BH landing boxes within that beach. The Allied player decides to land all twelve of the stacking points through DOG RED beach.

c. Improvements in a beach's capacity due to *Mulberry* harbor activation are treated as aggregate increases in the total landing capacity of the beach.

d. Different beaches may not combine landing capacities. Unit counters must be allocated to each beach individually.

e. Consult the *Debarkation Capacities Chart* for a complete listing of the landing capacities of beach, port, and mulberry landing boxes.

4. ALL Allied units, except those that appear on the assault landing schedule, must move through the *Allied Entry Track* before being placed on the mapboard landing boxes:

a. Allied units entering the game are first placed on the '10' box during the Allied replacement phase, advancing one box per replacement phase until they advance into the 'To Mapboard' area at which time they are immediately placed on the mapboard landing boxes.

b. There is no limit to the capacity of each entry box. Rather, capacity is determined by landing box limits, pool size, specific entry prohibitions, or order of appearance restrictions.

c. Units move from box-to-box at the Allied player's option. Units may not, however, enter more than one entry box per turn.

5. Entry Restrictions: Each category of Allied unit listed below may be placed on the entry track within three limitations:

a. Supply Units: All of the supply units in the *Supply Unit Pool* box at the beginning of each turn may be moved onto the entry track. The only limitation is the number of units in the pool. Supply units are returned to the pool box immediately as they are expended and removed from the mapboard.

b. Replacement Units: All of the replacement units in the *Replacement Unit Pool* box at the beginning of each turn may be moved onto the entry track. Replacement units expended in rebuilding units are immediately returned to the pool box.

c. Non-Divisional Units: Independent units may be moved onto the entry track at the rate of ONE U.S. artillery GROUP or TWO independent battalions (of any type) per TURN.

d. Entry Schedule Units: Units listed on the *Allied Entry Schedule* may be moved to the entry track on the turn they become available, or during any subsequent turn. Corps HQ units may be moved to the entry track at the rate of ONE Corps HQ (plus attached units for British HQ's) per turn on or after the date of availability.

e. Entry Track Units: Certain units begin the game on various boxes of the entry track itself. The 'x'('times') symbol followed by a numeral indicates the number of each type available in that box. Place the indicated units in the entry track prior to play.

6. Units added to the supply or replacement unit pool may be immediately moved onto the entry track.

7. Units may be added to the entry track and they may advance from one entry box to another during STORM turns (ST-1 or ST-2).[45]

F. GERMAN UNIT ENTRY

1. German units entering the game are placed directly on road or railroad EDGE hexes. The first hex of placement counts against a unit's movement allowance at either the road movement rate or the cost of other terrain in the hex.

2. All German units, except those special units of the *711 Division* and the Cherbourg garrison, must move through the *German Strategic Movement Track* before being placed on the mapboard:[46]

a. German units entering the game are first placed in one of the START BOXES (*Pas de Calais, BeNeLux, South France,* etc.) during the German replacement phase. In the same turn of placement in its start box, a unit may attempt to move into the first MOVEMENT BOX of its movement track.

b. A unit may attempt to enter a movement box at the German player's option. A unit may not attempt to enter more than one box per turn.

c. Each movement box has an intrinsic *interdiction value* printed in it. This value ranges from '0' to '2' and may be increased by Allied strategic interdiction (see below). For a unit to move from one box to another, the German player must roll one die. The resultant die roll number must be GREATER than the movement box's current interdiction value for the unit to advance into that box. If the die roll result is equal to or less than the current interdiction value, the unit must remain in its current box. Each unit must be rolled for separately.

d. Units may move in any direction on the movement track, but they may never re-enter start boxes nor may they re-enter the movement track once they move to the 'To Mapboard' area. (To speed things along, it is suggested that the German player attempt to move his units on the strategic movement track during the ALLIED player's movement phase.)

e. Units that begin the German replacement phase in a movement box connected to the 'To Mapboard' area of the movement track may be moved to the 'To Mapboard' area and then, during the movement phase, moved directly to the mapboard. No interdiction die roll is required to move from a movement box to the 'To Mapboard' area.

f. There is no limit to the capacity of any start or movement box or the 'To Mapboard' area.

3. Mapboard Entry Hexes: A unit entering the mapboard via a specific movement track is limited in its choice of road/rail edge hexes. All road/rail edge hexes are letter-coded. The proper entry hexes for each movement track are indicated in the 'To Mapboard' section. Units are limited to entering the mapboard ONLY through those edge hexes corresponding to the movement track that they use.

4. Entry Hex Limits: German units may not enter the mapboard through enemy-occupied edge hexes. If ALL edge hexes available to a particular movement track are occupied by enemy units, German units may not enter the mapboard via that movement box until an entry hex is made available.

5. Entry Restrictions: Each category of units listed may enter the game as outlined below:

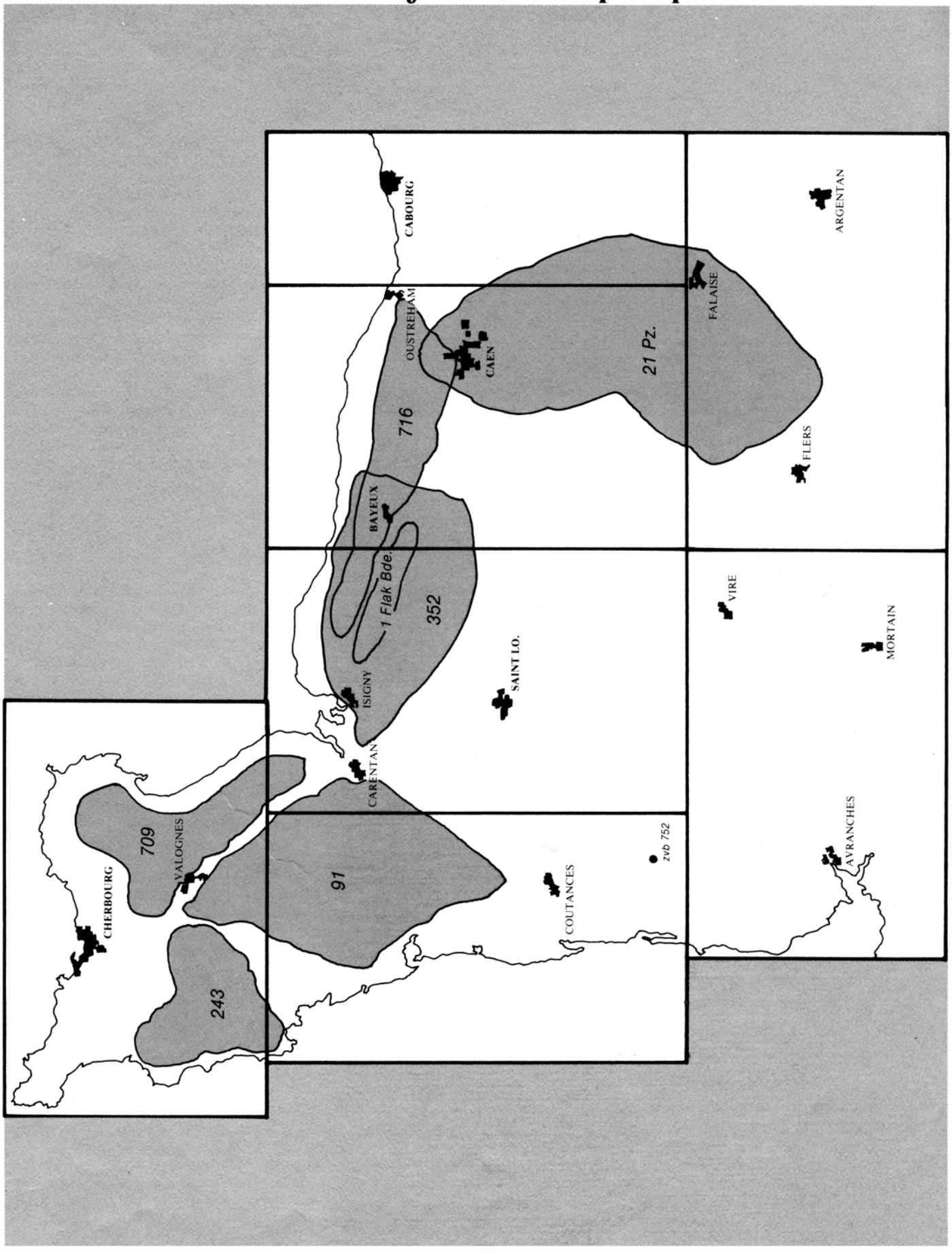
a. Supply Units: All of the supply units in the *Supply Unit Pool* box at the beginning of the German replacement phase may be removed to the *BeNeLux* start box. At the German player's discretion, ONE of the supply pool units may be started in the *Brittany* start box each replacement phase.[47]. Supply units are returned to the pool box immediately as they are expended.

b. Replacement Units: Start replacements in the *BeNeLux* start box during the replacement phase. There is no replacement unit pool. Rather, replacement units are available at a predetermined rate per turn. They are made available from the out-of-play units. The maximum number available is governed by the actual number provided on the counter sheet.

c. Entry Schedule Units: Units listed on the *German Entry Schedule* may be moved to their indicated start boxes on or after the designated turn. Notice that some units START on movement boxes, instead of start boxes.

d. SPECIAL: Certain German divisions have numbers printed below their units on their entry schedule. These units require a successful special entry die roll to move from the entry schedule to their start box during the replacement phase. Roll one die once per turn. If the number rolled is GREATER than the special entry number printed below the unit, the unit may be removed to the start box. If the die roll is equal to or less than the number, the unit must remain on the entry schedule. Repeat this procedure for each available unit once per turn until the required number is

German Major Unit Set-up Map



rolled.

e. Strategic Movement Track Units: Eleven supply units begin the game on the movement track. They may NOT attempt to move until the 7 June turn.

G. ALLIED STRATEGIC INTERDICTION

1. The Allied player is provided with six heavy bomber air units. When not used for carpet bombing, these units may be allocated to the German *Strategic Movement Track* to impede the movement of German units.

2. Heavy bomber units are placed in movement boxes during the Allied air/naval phase. A maximum of THREE bomber units may be placed in each movement box on the track. They may not be placed in start boxes nor in the 'To Mapboard' area.

3. Each heavy bomber unit adds '1' to the interdiction value of the movement box that it occupies. This is in addition to any intrinsic interdiction value printed in the box.

4. Heavy bomber units #5 and #6 may ONLY be used in the movement boxes in the Biscay and South France movement tracks.

5. Heavy bomber units may not be used for strategic interdiction during STORM (see *Summary Air Operations* Chart).

H. INTER-ALLIED COOPERATION

Certain restrictions apply to various aspects of U.S. and British joint operations:

1. Combat: U.S. and British ground combat units may not jointly attack the same hex in the same combat phase. Artillery units, however, have NO such restrictions. Artillery units of one side may support ground combat of another or both may combine against the same target for defensive fire purposes.[48]

2. Naval Gunfire: U.S. and British naval gunfire may not be combined against the same target in the same naval/air phase.[49]

3. Air Power: U.S. and British medium and light bomber units may not attack hexes being attacked by the other's ground units in the same turn.[50]. All other types of air activity may be undertaken jointly.

4. Replacements: U.S. and British replacement and remnant units may only be used by their respective nationalities.

5. Logistics: U.S. and British units may only use beach landing boxes containing beachhead (BH) markers on beaches of their respective nationalities. Port landing boxes and Mulberry landing boxes, however, may be used freely by units of either nationality.

6. EXCEPTION: The three British Crocodile flamethrower squadron units (of the 141st Regiment), and ONLY these three units, may be used in conjunction with U.S. ground combat units against the same target in the same turn.[51].

I. PORT AND MULBERRY LOGISTICS

In addition to beachhead landing boxes, the campaign game rules provide for Allied introduction of new units using three additional types of landing boxes; artificial harbors ('Mulberries'), minor ports (Courseulles, Isigny, St. Vaast, and Barfleur), and the major port of Cherbourg. Each type possesses unique characteristics and limitations:

1. Mulberry Harbors: 'Mulberries' were the famous artificial harbors used by the Allies on Omaha and Gold beaches:

a. During the Allied replacement phase of the 7 June turn or later, the Allied player may 'exchange' the BH marker at Dog/Red on Omaha Beach for the Mulberry A counter and the BH marker at Item/Green on Gold Beach (Arromanches) for the Mulberry B counter. In either case, the exchange is made by simply removing the BH marker and replacing it with the proper INVERTED Mulberry counter. If, for any reason, there is no BH marker in the specific landing box as required, the Mulberry counter may not be placed in the landing box until the connected coastal hex is free of enemy units.[52]

b. Mulberry harbors require a minimum of 14 turns to construct.[53] Indicate the earliest turn of availability by placing the proper port marker in the correct turn record box. During the replacement phase of the fourteenth turn of construction, one die is rolled on the *Port Construction Table* and the port marker is adjusted accordingly. If additional turns of construction are rolled, the port marker is adjusted accordingly. If a '0' is rolled, the Mulberry harbor counter is turned face up and becomes operational. Roll for each Mulberry separately.

c. The Mulberry harbor may be used in the same turn that it becomes operational. Consult the *Debarkation Capacities Chart* to determine the additional capacities available through the beach with the addition of the Mulberry harbor.

d. An operational Mulberry harbor cancels the beachhead marker's basic debarkation capacity of one stacking point per turn. If the Mulberry harbor is destroyed, the beachhead marker's basic debarkation capacity is restored.

e. Storm Damage: Beginning on the second turn of STORM weather and for each consecutive storm turn thereafter, roll one die on the *Mulberry Storm Damage Table* during the replacement phase for each Mulberry harbor on the mapboard. If the Mulberry is building, advance the port marker five boxes on turn record track for EACH 'D' result rolled. If the Mulberry is operational, replace the Mulberry counter with a Damaged Mulberry when a 'D' result is rolled. If the Mulberry is already damaged and a 'D' is rolled, remove the Damaged Mulberry counter from the mapboard.[54]

f. Mulberry counters are destroyed and removed from the mapboard if an enemy unit moves into the connected coastal hex. Once destroyed or damaged, a Mulberry may not be restored to its former condition.

2. Minor Ports: There are four minor ports on the mapboard which the Allied player may convert to his own use in a procedure similar to that used for Mulberry harbors:

a. During the Allied replacement phase following the turn in which an Allied combat unit enters the CITY/TOWN hex to which the minor port box connects, the Allied player may place a 'BUILDING' counter in the port landing box on the mapboard and the appropriate minor port counter on the turn record track.

b. Minor ports require a minimum of 14 turns to clear. During the Allied replacement phase of the fourteenth turn, one die is rolled on the *Port Construction Table* and the minor port marker is adjusted accordingly as described above for Mulberries. If a '0' is rolled, the minor port becomes operational. Remove the 'BUILDING' counter and replace it with the minor port counter from the turn record track.

c. Consult the *Debarkation Capacities Chart* for debarkation rates.[55] Note that minor port capacities may not be combined. The printed capacity represents the maximum number of stacking points that may be placed in the minor port landing box in a single turn.

d. Whenever a German combat unit enters the city/town hex to which a minor port landing box is connected, all debarkation capacity is immediately lost. To restore the minor port's capacity, the entire 14 turn process must be repeated after Allied units have regained possession of the city/town hex.

3. Port of Cherbourg: This was the major Allied port of entry during the campaign. Place the 'CHERBOURG STATUS' marker on the '12' box of the Logistics Track at the start of the game.

a. The Cherbourg port landing box becomes immediately operational during the Allied replacement phase following the turn in which an Allied combat unit occupies the city hex connected to the landing box AND all German units are eliminated from the six hexes adjacent to that city hex. Note, however, that the port landing box may have a capacity of zero (or even a negative capacity) when it becomes operational. Place the CHERBOUG port counter in the port landing box to signify that it is operational.

b. Port Demolition: Beginning on the 7 June turn's Allied replacement phase, the German player rolls one die on the *Cherbourg Status: German Demo* section of the logistics table. [56]. If demolition is indicated, the CHERBOURG STATUS marker should be adjusted downward accordingly. The German player may roll on the table once per turn until the connected city hex is occupied by an Allied combat unit. If, subsequently, a German combt unit re-occupies the city hex, the German player may resume rolling on the *German Demo* section unitl an Allied unit once again occupies that hex.

c. Port Repair: During the replacement phase in which the port landing box becomes operational, the Allied player may begin rolling one die per turn on the *Allied Repair* section of the logistics table in an attempt to increase the port's debarkation capacity. The Allied player may continue to roll once per turn until the capacity reaches the maximum of '36' on the *Logistics Track*.

d. The Allied player may utilize any increase in capacity in the same turn that it occurs. The *Allied Repair* section may be consulted even during STORM turns. The Cherbourg debarkation capacity may not be combined, but must be used only at the Cherbourg port landing box.

J. RAIL MOVEMENT AND INTERDICTION

Only the German player may move units using mapboard rail lines.[57] The Allied player may, however, allocate air units to interrupt German rail traffic:

1. Only German units may use railroad movement. A unit may only use railroad movement when ENTERING the mapboard from the strategic movement track. A unit may continue to use railroad movement during the subsequent turns, but may NOT combine railroad and regular

movement in the same turn. IMPORTANT: Once a unit uses regular movement, it may never use railroad movement again.

2. A unit using railroad movement is indicated by placing a TRAIN counter on top of it. Only one unit, regardless of size, may use a train counter at a time. The number of units that may simultaneously use railroad movement is strictly limited by the number of train counters provided in the game.

3. Railroad movement is executed during the German regular movement phase. Units moving by rail may NOT move adjacent to Allied combat units. Units using railroad movement are subject to normal stacking restrictions. Such units have NO zone-of-control while under TRAIN counters, regardless of terrain.

4. A unit may NOT attack in the same player segment in which it uses railroad movement. If attacked in ANY MANNER (by ground, artillery, air, or naval methods) while under a train counter, the unit defends normally, but the train counter is immediately removed. Units that are forced to de-train in otherwise prohibited terrain are immediately eliminated instead.

5. A unit may cease railroad movement at the beginning of a movement phase by simply removing the train counter. (It may not be removed during the MECHANIZED movement phase!) Train counters are immediately returned to the TRAIN RETURN box on the *Strategic Movement Track*. Train counters in the return box are moved to the TRAIN AVAILABLE box during the reset phase. New units entering the mapboard may only use train counters in the TRAIN AVAILABLE box.

6. A unit using railroad movement may only move on rail line hexes tracing a path of movement from rail line to contiguous rail line. It may only move through those city hexes which are connected to rail line hexes. Allowable railroad movement through cities is indicated by converging arrowheads on the railroad lines. Ends of railroad lines are always in city hexes and are indicated by a small black square at the end of the rail line.

7. A unit using railroad movement may move through an unlimited number of rail line hexes in a single movement phase. It may, however, only move through THREE CITY or CUT hexes per movement phase, maximum. Units entering end-of-rail line city hexes must STOP and permanently end all railroad movement.

8. Railroad Interdiction: The Allied player may allocate his light-, medium-, and fighter-bomber aircraft units to the *Railroad Interdiction Box* in order to create CUTS on rail line hexes and to permanently damage the German rail system. See the *Summary: Air Operations* Chart for the effects of weather on railroad interdiction.

a. Light-, medium, and fighter-bomber units are allocated to the *Railroad Interdiction Box* during the Allied air/naval phase.

b. Compute the total number of interdiction points and roll one die on the *Railroad Interdiction Table*. The results represent BOTH the number of CUT markers available for placement and the amount of accumulated damage sustained by the rail system.

c. CUT markers are placed on rail line hexes and accumulated damage recorded on the *Logistics Track* immediately as it occurs.

9. Rail Line Cuts: The total number of CUT markers permitted on the mapboard is limited to the number provided on the counter sheet. No more than one CUT marker may be placed in a hex at a time. CUT markers may be placed only in rail line hexes; they may not be placed in city hexes nor may they be placed in woods/rail line hexes.

10. Repairing CUTS: The German player is provided with four E.TR (*Eisenbau Truppen* = railroad construction troops) companies.[58] These units have the ability to 'repair' (remove) CUT markers.

a. E.TR units move only during the German mechanized movement phase.

b. Each E.TR unit may move up to 30 rail or rail/city hexes per turn.

c. An E.TR units may move through CUT markers without penalty.

d. Each E.TR unit may remove ONE CUT marker per turn. The E.TR unit may remove a CUT marker from the hex it occupies during the German replacement phase.

e. E.TR units may not move adjacent to enemy-occupied hexes. If attacked, they defend normally although they may not retreat off of rail line hexes.

11. Accumulated Damage: Prior to play, the RAIL DAMAGE marker is placed in the '0' box of the *Logistics Track*. Whenever a CUT marker is created by the *Railroad Interdiction Table,* it is immediately recorded by advancing the RAIL DAMAGE marker along the *Logistics Track*. When the RAIL DAMAGE marker reaches or exceeds the '60' box, the rail system is considered to have collapsed. When this occurs, all mapboard rail movement ceases immediately. Remove all train, E.TR, and CUT markers from the mapboard.[59]

12. Railway Artillery: The German player is provided with several artillery units which may move ONLY on rail line/city hexes. These are indicated by the rail symbol and bracketed movement allowance.

a. They may move at the rate of one rail/city hex per movement point. They may NOT, however, move through or into a rail hex containing a CUT marker.

b. If the rail system collapses, these units remain on the mapboard, but must cease all further movement (thus becoming stationary units). Railway artillery units move during the German regular movement phase. If forced to retreat under any circumstances, they are eliminated instead.

c. SPECIAL: Unlike other types of artillery, railroad artillery units have a maximum range and a MINIMUM range printed on their counter. They may not fire at targets that are located closer than their minimum range. (EXAMPLE: A '7-18' range means that the unit can fire on any target that is at least seven hexes away but not more than eighteen hexes away.)

K. AIR BOMBARDMENT

1. During the air/naval phase, light and medium bomber units may be allocated directly to enemy-occupied hexes and may execute air bombardment attacks against enemy units in those hexes.

2. Air bombardment attacks are executed on the *Bombardment Table*. Air and naval strength points may not be combined in the same attack, but the same hex may undergo both air and naval bombardment during the same phase.

3. Unlike naval bombardment, the enemy hex undergoing air bombardment need not be adjacent to friendly combat units to be attacked.

4. German units that are successfully air bombarded are DISRUPTED.

5. Units in forest or swamp hexes may not be air bombarded. German E.TR units suffer NO EFFECTS from air bombardment.

6. See *Summary: Air Operations* Chart for the effects of weather on air bombardment.

L. AIR SUPPLY

1. The Allied player is provided with four air supply counters which function as regular (inverted) supply units except that they enter the game directly, without using the *Allied Entry Track,* via the air drop procedure.

2. At the Allied player's discretion, any available air supply units may be moved directly to the mapboard and airdropped using the regular airborne drift procedure.

3. Any type of Allied HQ may use an air supply unit as a supply source. When consumed in combat, however, air supply units are immediately returned to the *Air Supply Box* on the entry track. If lost due to drift dispersal, they may not be used again until the following turn.

4. See the *Summary: Air Operations* Chart for the effects of weather on air supply.

M. ALLIED UNIT WITHDRAWAL

1. During the Allied regular movement phase, any Allied unit may be moved to a beach or port landing box's connected coastal hex and from there immediately removed from the mapboard and returned to its proper box on the Allied player aid card.

2. While on the player aid card, a unit may absorb replacements. In this case, replacement units are removed from the *Replacement Unit Pool* box and placed directly in the unit's box. Replacements are absorbed using the normal three-turn procedure. Likewise, remnant units may be removed from the mapboard provided they are removed to the unit boxes belonging to the units that they represent.

3. Units may return to the mapboard by using the *Allied Entry Track* procedure.

STOP! READ NO FURTHER. PLAY THE CAMPAIGN GAME SCENARIO.

X. THE CAMPAIGN GAME SCENARIO

MAPBOARD AREA: Use entire mapboard.
GAME LENGTH: Theoretical maximum of 87 turns; 6 June through 31 August. (Practical game length is, however, considerably shorter. See victory conditions.)
SET-UP FOR PLAY:

Allied: First turn requirements: Set up Allied units on *Allied Assault Landing Schedule, Allied Naval Gunfire Control Display,* and *Allied Aircraft Deployment Display*. For subsequent turns, units will be set up on the *Allied Unit Entry Track* and the *Allied Entry Schedule.*

German: First turn requirements: Set up starting German units on the mapboard as per Scenario #5 Set-up. For subsequent turns, set up units on the *German Unit Entry Schedule.*
REINFORCEMENT ENTRY:

Allied: Reinforcements, replacements, and

supply units (except airborne) enter play via the *Allied Unit Entry Track*.

German: Reinforcements, replacements, and supply units enter play via the *German Strategic Movement Track*.

SUPPLY SCHEDULE: See the appropriate Allied or German entry track for specific limits and instructions.

AIR POWER: All Allied air units are available. See the *Allied Aircraft Deployment Display*.

NAVAL BOMBARDMENT: Full Allied navai gunfire is available. See the *Allied Naval Gunfire Control Display*.

VICTORY CONDITIONS:

Allied: The Allied player wins by exiting at least three divisional HQ units and some, none, or all of their subordinate units off of the mapboard edge via any three different LETTERED road/railroad hexes before the end of the 31 August turn. The game ends immediately whenever the third HQ unit exits the mapboard via the third lettered hex. These units do not have to exit during the same turn. [60] Once units exit the mapboard, however, they may not re-enter.

German: The German player wins by avoiding the Allied victory conditons OR by fulfilling ONE of the following victory conditions:[61]

1. Reduce the Allied side to LESS than TEN beachhead (BH) and operational (major and minor) port markers at any time after the 6 June turn. This may be accomplished by physically occupying the beach or port hexes in question.

2. Maintain the cities of MONTBOURGE, CARENTAN, and CAEN completely free of any occupying Allied combat units at the end of the 20 June turn.

3. Maintain the cities of CHERBOURG, ST. LO, and CAEN free of Allied combat units at the end of the 5 July turn.

SPECIAL RULES:

1. Use the special Invasion Sequence of Play for the 6 June turn.

2. The 30 Flak Regiment and the 932 Flak Battalion may not move until the 8 June turn.

3. Strategic road movement may not be used during the 6 June turn.

4. Allied assault-wave units suffer DOUBLE the normal casualties in combat during the 6 June beach assault phase. (See Scenario #5, C.2.d.).

5. Allied and German units are automatically supplied during the 6 June turn (See Scenario #5, D.).

6. German supply units on the *German Strategic Entry Track* may not attempt to move until the 7 June turn (See Campaign Game rule F.5.e.).

XI. CAMPAIGN GAME VARIATIONS

The following sections discuss some of the more interesting hypothetical situations that historians have studied over the years. These entries are not 'experimental' or 'optional' rules, but rather detailed discussions of 'alternate reality'. They are all plausible alternatives to recorded history that for one reason or another did not occur. By using these entries to test various hypotheses, the real power of a simulation can be explored. If the simulation model is a good one, the impact of these alternative developments can be more or less accurately assessed.

It is recommended that these variations be used singly. There is no such thing as a 'full-blown' version of *Longest Day* that can only be played by using ALL of the optional rules and game variations. Rather, each variation stands as its own study of an interesting historical sidelight. Read the histories, play the variations, and then make your own enlightened conclusions:

A. SECOND ALLIED AIR DROP

As the fighting bogged down in the Normandy bocage, Allied planning staffs formulated a second airborne landing plan to be executed in conjunction with the breakout offensive.[62] Luckily, the unexpectedly rapid success of *Cobra*, however, meant that the second drop was unnecessary. Had the stalemate continued, there is every indication that the U.S. airborne divisions would have been used as tactical leverage to break out from Normandy:

1. Only the U.S. 82nd and 101st airborne divisions and attached troops may attempt a second air drop.

2. To initiate the second air drop process, either or both of the U.S. airborne divisions must be withdrawn off of the mapboard as per the 'Allied Unit Withdrawal' rules. Any partial-strength combat units MUST be rebuilt to full strength before they are air dropped. Any non-HQ units that have been previously destroyed in combat may not be rebuilt.

3. The anticipated turn of the air drop must be secretly designated in writing after the airborne divisions have been withdrawn from the mapboard:

a. The turn of execution of the second air drop must be secretly designated in writing at least 21 turns in advance.

b. Any airborne units that have NOT been withdrawn at the time of the second air drop, may not be used in airborne operations.

c. Once the turn of execution of the second air drop has been recorded, it may be permanently cancelled, but it may not be changed to another turn.

4. Each airborne division, or part thereof, must be organized by the Allied player into four separate 'drop groups'. Each group must contain at least two battalion-sized units (insofar as their current order-of-battle allows). Identify these 'drop groups' as follows:

a. 82nd AB Division: Groups 'A', 'B', 'C', and 'D'.

b. 101st AB Division: Groups 'W', 'X', 'Y', and 'Z'.

5. Each 'drop group' must be assigned its own, unique, drop hex. The exact location of each drop zone hex must be secretly recorded by the Allied player at least SEVEN turns or more before the air drop turn. Simply list each drop group's intended drop hex by describing it in relation to a town or city hex. EXAMPLE: "Drop Zone A: 3 hexes North of Briouze; Drop Zone B: 2 hexes NNE of Canisy; etc. . . "

6. Drop zone hexes must be designated in accordance with the following limitations:

a. Each drop zone hex MUST be within 30 hexes of an Allied corps HQ at the time it is recorded.[63]

b. Each drop zone hex of a particular division must be positioned within FOUR hexes of EVERY other drop zone hex of that division.

c. If both airborne divisions are utilized, at least one drop zone hex of one division must be within TEN hexes of at least one drop zone hex of the other division. Further, EACH drop zone hex of the one division must be at least TWO hexes away from ALL the drop zone hexes of the other division.

d. Drop zones may not be designated for CITY or COASTAL hexes.

e. Use blank counters inscribed with the proper letters to identify drop zone hexes during the execution of the drop procedure.

7. During the Allied replacement phase of the prescribed turn, the air drop procedure is executed as indicated in the rules. NOTE: All airborne units MUST be air dropped during the same turn; only air supply missions may be executed in subsequent turns.

8. SPECIAL: If ANY drop zone hexes are located more than 30 hexes from an Allied corps HQ at the beginning of the air drop turn, the drop is immediately and permanently cancelled and may not be rescheduled.

9. Second air drop operations may only be executed during FAIR weather. If the weather is not fair, the air drop is automatically postponed to the next immediate fair weather turn.

10. The Allied player always retains the option of permanently cancelling the second air drop during any replacement phase prior to the actual turn of execution. He may cancel any drop postponed due to weather. He may NOT cancel an air drop in the same turn in which it is to be executed. He may never voluntarily postpone an air drop to a later turn once it has been recorded in writing.

B. THE 82nd AIRBORNE DIVISION'S DROP ZONE NOT REVISED

During May, 1944, Allied intelligence analysts were startled to discover that the Germans had moved the *91 Infanterie Division* into the area Carentan—St. Sauveur—Valognes. In short, the German division was sitting right on top of the 82nd Airborne's drop zones! On 26 May, Gen. Omar Bradley ordered the airborne plan revised so that the 82nd Airborne would land next to and north of the 101st's drop area.[64]

This last-minute German movement was *almost* overlooked entirely! In fact, Allied reconnaissance had failed to notice the presence of the *352 Infanterie Division* sitting behind Omaha Beach. What would have happened had the *91 Infanterie Division* also gone un-noticed? To create the original drop plan, modify the 82nd Airborne's drop zones as follows:

1. Ignore drop zones 'T', 'N', 'O', and 'W' printed on the mapboard.

2. The original drop zones were planned for an area located south and west of the city of St. Sauveur. The exact drop zones hexes are:

a. Drop zone 'T': Two hexes NNW of Taillepied.

b. Drop zone 'N': One hex SW of Taillepied.

c. Drop zone 'O': Two hexes NE of Taillepied.

d. Drop zone 'W': One hex South of le Boulay.

3. All other aspects of the Allied air drop procedure remain the same.

C. HITLER ABANDONS THE CHANNEL ISLANDS

The German occupation of the Channel Islands (Jersey, Guernsey, and Alderney), located

off of the west coast of the Cotentin Peninsula, remains a little-known but most-fascinating chapter of WWII. The Islands held the unique, if dubious, distinction of being the only British territory occupied by German forces.[65] Perhaps that fact goes far towards explaining Hitler's utter and baseless obsession with a group of islands possessing only feeble strategic importance for the defense of *Festung Europa*.

Far from being pivotal, the Channel Islands were a complete drain on the *Wehrmacht* from the first day they were peacefully, almost accidentally, occupied by a somewhat bewildered *Luftwaffe* pilot in June, 1940. The populace produced no raw materials, manufactured goods, or slave labor, but required constant German subsidy and administration. Under Hitler's prodding, the *Wehrmacht* dumped an impressive array of modern coastal defense artillery, the *319 Infanterie Division,* its numerous support units, and several *0st* battalions into a virtual backwater of the war.[66]

When the invasion finally smashed into the Normandy beaches, the channel Islands were quietly ignored, not even attracting the obligatory bombing suffered by most areas near the French coast. Almost immediately, *OKW* advisers begged Hitler to evacuate the *319 Infanterie Division* to the mainland, possibly to participate in the defense of Cherbourg. Typically, Hitler steadfastly refused to let the division, a very large nine-battalion unit of the 1939 type, be used for any useful purpose.[67] Thus, almost 40,000 first-rate soldiers sat out the war, finally surrendering at the end of hostilities in 1945.[68]

The situation could have been altered, however, if Hitler had simply changed his mind. In this scenario, the invasion lands at Normandy, Seventh Army finds itself embarrassingly short of troops, and someone at *OKW* gently points out to Adolph Hitler that, since the Allies have the Normandy beachhead, they don't *need* the Channel Islands. Fearing the quick loss of Cherbourg, Hitler develops an instant appreciation for that viewpoint. He orders Adm. Kranke, *Marine Gruppenkommando West,* to pull together all of the coastal transport in Brittany and evacuate the *319 Division. Marine Artillerie Abteilungen 604* and *605 and Heeres Artillerie Regiment 1265* are retained on the islands because they are too difficult to move. They are sufficient, however, to keep the Channel Islands in German hands until the end of hostilities in 1945.

Moving at night under the watchful eyes of powerful German coastal artillery, elements of the *319 Division* are safely evacuated to the mainland in the later half of June and participate fully in the campaign.[69] This alternative slice of history can be included as follows:

1. Beginning on the 10 June German replacement phase, the German player may attempt to introduce individual units of the *319 Division,* plus the *213 Panzer, 643 Ost* and the *823 Ost* battalions, into play.

2. These units enter play via a special die roll, the number for which is printed below each unit's symbol on the *German Entry Schedule.* Roll once per turn for each unit. If the die roll is GREATER than the printed number, the unit may enter play.

3. Units that enter play are immediately placed on either the Cherbourg port landing box or the *Rennes Strategic Movement Track* box, at the German player's option.

4. Units may be placed in the Cherbourg port landing box providing that no Allied combat units occupy ANY Cherbourg city hexes and the port of Cherbourg still retains sufficient port capacity to accommodate any units landing there. If Allied units occupy Cherbourg or if the port capacity is insufficient, units must be placed in the *Rennes SMT* box. The German player may still conduct demolition operations against the port in the same turn in which he lands units providing that any remaining capacity is sufficient to handle the units that were landed in the same turn.

5. Add one supply unit to the pool whenever the *319 Division* HQ unit enters play. The supply unit may start at either *BeNeLux* box or it may be the one unit per turn allowed to start in the *Brittany SMT* box.

6. No units may attempt to enter the game when there is STORM weather.

7. SPECIAL: Units of the *319 Division* (including the *0st* battalions) may not use rail movement.

D. SPRING WITHDRAWALS RESCINDED

On March 26, 1944, the *IIss Panzer Korps* was ordered to assist the *First Panzer Army* which was under fierce Russian attack in Galicia. This formation, comprising the *9ss* and *10ss* Panzer Divisions and other valuable corps units, did not return to the West until the end of June.[70] If it can be presumed that the Eastern Front stabilized earlier, or that Hitler had been persuaded from denuding the West of panzer formations, these units would have been available much sooner. The starting situation would have been altered much like this:

1. Ignore the 25 June entry date for units of the *9ss* and *10ss Panzer Divisions* and the *IIss Panzer Korps.*

2. Position the above-mentioned units as indicated:

a. The *102ss schwere Panzer Abteilung* (three company-sized units): In any Argentan city hex.

b. The remainder of the *IIss Panzer Korps* units (*IIss Nebelwerfer Abteilung* and the *IIss Panzer Korps* HQ unit plus supply): *Alencon SMT* box.

c. All *9ss Panzer Division* units (plus supply): *South France SMT* box.

d. All *10ss Panzer Division* units (plus supply): *Rheims SMT* box.

3. The *IIss Panzer Korps* units on the mapboard may move on the 6 June turn. The units listed above on the German *Strategic Movement Track* may not move until the 9 June turn (which corresponds to the approximate activation date of *Panzer Group West.)*

DISCUSSION: The units described above were certainly the most important troops to be withdrawn *en masse* from France in the six months prior to the invasion. They were far from the only units to be shifted, however. Such withdrawals became commonplace as a result of the evolving relationship whereby the West became, in effect, a large replacement and recovery center for units in the East. Throughout the winter of 1943-44, higher-quality personnel were periodically 'combed-out' of units engaged in garrison duty in western Europe. Beginning in the spring, however, this grew to include the wholesale drafting of vital equipment out of units in the West for hard-pressed divisions in Russia. In March, 1944, four infantry divisions *(326, 346, 348,* and *19 LW)* were ordered to release all of their mobile assault and anti-tank guns. At the same time, several first-class divisons were replaced by training divisions and shipped to the East.[71]

More serious, however, was the loss of the mobile reserve divisions. In January, *715 Infantry Division (Motorized)* and the *9ss Panzer Division* were sent to Italy to counter the Allied landings at Anzio. In March, *130 Panzer Lehr Division* was sent to garrison Hungary, not returning until the middle of May. At the end of March, the entire *IIss Panzer Korps* was shipped to Hungary. At the beginning of April, *OB West* had seen its mobile strategic reserve reduced to a single division, the *21 Panzer.*

Thus, because of the constant shifting of units into and out of the West, anti-invasion force levels varied drastically from month to month. Any analysis of the relative merits of the German defense of France must account for the impact of this type of uncertainty in the minds of German staff planners. The field commanders could not depend upon any single element of the thin defense too heavily; what Hitler giveth, Hitler could only too easily taketh away.

E. ROMMEL'S STRATEGY FULLY EMBRACED

One of the greatest impediments to German strategic success in the West was the personality clash between *Army Group B* commander Field Marshal Erwin Rommel and his superior, Field Marshal Gerd von Rundstedt, *OB West.*[72] Rommel, fearing Allied air power, demanded that mobile reserves be positioned very close to the beaches so that they could intervene decisively within the first 24 hours of the invasion. Rundstedt, applying more conventional doctrine, supported a disposition that preserved German strategic mobility until the Allied invasion intentions were fully realized. The tangled command structure in the West meant that both plans were partially implemented, much to the detriment of both.

Presume, for the sake of argument, that Rommel prevailed in one important area of controversy: the disposition of the reserve mobile divisions. Suppose that the expanded authority over the four *OB West* reserve divisions conferred on Rommel by Hitler in March had NOT been rescinded a short time later.[73]. That expedient would have allowed Rommel to exert greater authority on the final positioning of the three mobile divisions of *Army Group B (2, 21,* and *116 Panzer).* Much more importantly, however, it would have allowed Rommel to determine the disposition of the four mobile divisions of the *OB West* reserve *(1ss, 12ss, 17ss Panzer Grenadier,* and *130 Panzer Lehr).* With this amount of control, any commander could have exercised a much stronger influence on the strategic conduct of the upcoming Battle for France.

In Rommel's hands, this authority probably would have translated into a much stronger move of the reserve forces westward and closer to the coast.[74] His disposition would have looked much like this:

1. *1ss Panzer Division:* Units of division may be positioned on the *Amiens* box of the *German Strategic Movement Track.* Ignore printed instructions for this unit.

2. *17ss Panzer Grenadier Division:* Starts on the mapboard. Ignore printed instructions for this unit. All units must be placed within an area bounded by (and including) the road hexes connecting the cities of: St. Lo—Coutances—Granville—Avranches—Villedieu—Tessy—St. Lo. At least one combat unit must occupy each hex of every listed city. Place the divisional HQ unit (plus a supply unit) in any city hex of Avranches.

3. *21 Panzer Division:* All units that have printed positions SOUTH of Caen (exclusive of the city) may be relocated to any primary road hex on either the Caen—Thury-Harcourt road or the Caen—Villers road. They may NOT be placed in Caen itself, however.

4. *130 Panzer Lehr Division:* Starts on the mapboard. Ignore printed instructions for this unit. All units must be placed within an area bounded by and including the road hexes connecting the cities of Argentan—Falaise—Conde—Flers—Briouze—Argentan. At least one combat unit must occupy each hex of every listed city. Place the divisional HQ unit (plus a supply unit in any city hex of Argentan.

DISCUSSION: While speculative, this set-up represents a plausible alternative and represents the final transformation of a plan Rommel was 'inching' into place under the noses of *OKW* and *OB West*. He had already advanced elements of the *21 Panzer Division* much closer to the coast than authorized. As May ended, he was constantly working the *130 Panzer Lehr Division* ever more westward. The key factor would have been the question of how quickly Hitler would have released the *OB West* reserves in the event of an invasion. He did have a premonition that Normandy was THE invasion area. If he would have followed his instincts (as he had done so often in the past) and thrown himself totally and inalterably behind his 'wonder boy', Rommel, it is very plausible to conclude that the would have released these divisions much sooner. He would have done so if for no other reason than the fact that they were so close at hand to the fighting they could have 'tidied up' a Normandy landing and still be in a position to consolidate the mobile reserve against an anticipated landing in the Pas de Calais sector. On reflection, Rommel's static, all-or-nothing strategy was probably the only viable approach, if for no other reason than the fact that it would have made a wait-and-see attitude at *OKW* much harder to maintain with powerful panzer troops so close to the beachhead. This might have been Rommel's way of outsmarting not only the Allied high command, but the German high command as well!

F. ROMMEL APPOINTED C-in-C of OB WEST

A more decisive, but complex, alternative has Hitler appointing Rommel, instead of Rundstedt, overall commander of forces in western Europe. Rundstedt, appointed in 1942, is replaced by Rommel in November, 1943 and reappointed to a command position in Italy or the Balkans. Fitting Hitler's requirement for a 'dynamic' leader for the upcoming Battle for France, Rommel takes charge eight to ten weeks sooner. (That this did not occur was due to Hitler's deference to Rundstedt rather than any lack of faith in Rommel.)[75] In this situation, we have Rommel adjusting his forces and husbanding his defensive resources until the final week before the invasion, moving stronger units immediately behind Normandy. There would have been little or no strong central mobile reserve.

Some would argue that this type of build-up would have persuaded the Allied to abandon Normandy as an invasion site. This does not necessarily follow. The Germans eventually DOUBLED their original forces in Normandy (adding the *91 Infanterie, 352 Infanterie,* and the *21 Panzer Divisions*) which evoked no more response from the Allies than a last-minute, ten kilometer shift of the 82nd Airborne Division.

Could the Germans, given ideal conditions and dispositions, have stopped the Allied invasion on the water's edge? Yes. But those 'ideal' conditions would have been difficult to attain. This set-up, utilizing only those forces available in France and retaining a complete defense of all coastal areas, represents Rommel's optimum defensive disposition.

Had Hitler given him full command in the West, it is very conceivable that this is the defense the Allied would have faced:

1. *12ss Panzer Division:* Starts on the mapboard. All units must be placed within an area bounded by and including the road hexes connecting the cities of Carentan—La-Haye-du-Puits—Lessay—Periers—Coutances—St. Lo—Isigny—Carentan. At least one combat unit must occupy each hex of every listed city. Place the divisional HQ unit (plus a supply unit) in Carentan.

2. *130 Panzer Lehr Division:* Starts on the mapboard. All units must be placed within an area bounded by and including the road hexes connecting the cities of St. Lo (eastern-most hex only)—Bayeux—Caen (western-most hex only)—Caumont—St. Lo. At least one combat unit must occupy each hex of every listed city, except as limited above. Place the divisional HQ unit (plus a supply unit) in town of Tilly-sur-Seulles.

3. *21 Panzer Division:* Ignore initial starting positions printed on the mapboard. All units must be placed within an area bounded by and including the road hexes connecting the cities of Caen (hexes north of the river only)—Douvre—Lion—Caen and/or within an area bounded by and including the cities of Caen (hexes south of river)—Thury Harcourt—Falaise—Caen. At least one unit must be placed in each city hex of the second group of cities. Place the divisional HQ unit in town of Bretteville.

4. *7 Nebelwerfer Brigade:* Starts on mapboard. Ignore printed instructions for this unit. Units may be positioned anywhere within three hexes of any city hex of either Carentan or Isigny, south of the *Groule River* and the *Aure Inferieure.* Place the brigade HQ unit (plus a supply unit) in town of St. Jean-de-Daye.

5. *III Sturm-Flak Korps:* Entire corps starts on mapboard. Ignore printed instructions for the second, third, and fourth regiments, and *KG 300.* Each regiment is positioned as follows:

a. *1 Sturm-Flak Regiment:* As per the original positions printed on the mapboard.

b. *2 Sturm-Flak Regiment:* Units may be positioned anywhere within four hexes of either city hex of Bayeux. Place regimental HQ unit in Bayeux.

c. *3 Sturm-Flak Regiment:* Units may be positioned within four hexes of any Caen city hex. Place regimental HQ unit in Caen.

d. *4 Sturm-Flak Regiment:* Units may be positioned within THREE hexes of either the town of Dozule or the town of Troarn (east of Caen, south of Houlgate). Place regimental HQ unit in either town hex. Include *KG 300* with this regiment.

5. *1ss Panzer Division:* Units of this division are placed on the *Pas de Calais* box of the German SMT, on or after 22 June turn. Ignore printed instructions for this unit.

6. *17ss Panzer Grenadier Division:* Units of this division are placed on the *Rennes* box of the German SMT, on or after 8 June turn. Ignore printed instuctions for this unit.

7. All other units retain their original time and location of entry.

DISCUSSION: The ramifications of German defensive placement remains one of the most interesting topics of discussion and speculation surrounding the Normandy campaign. Certainly the situation would have been much different had Rommel been appointed *OB West* instead of Rundstedt. Not to be discounted is the fact that he would have had up to ten additional weeks to whip the 'Atlantic Wall' into shape. That could have made a very big difference. He would have been able to 'creep' his units even closer to the coast without *OKW* noticing. He would have had his way with individual corps and divisional commanders who resisted his defensive doctrines. He would have been totally unable, however, to stop the movement of strategic units into and out of the West. Nor would he have been any more successful in beefing-up the units already stationed in France.

Some may object to the speculative defensive arrangement presented above on the grounds that Hitler would have never allowed the dispositions Rommel envisioned. The extreme placement of the three mobile divisions, they would argue, would have been violently opposed by *OKW.* Hitler, then, would follow *OKW's* lead and nullify such placement.

Rommel, within the realm of his own legitimate authority, had already installed a double-line defense behind Pas de Calais consisting of a *'landfronte'* line of static divisions on the coast support by 'mobile' and 'semi-mobile' divisions a few kilometers inland.[76] Given Hitler's demonstrated 'premonition' of a Normandy landing, it is within the realm of reasonable speculation to conclude that Hitler would have concurred in the continuation of this 'double-belt' defense into the Normandy area. Further, without the 'mobile panzer battle' philosophy propounded by Rundstedt and Geyr von Schweppenburg (commanding *Panzergruppe West*), it seems reasonable that Hitler would have reacted to the situation in France with considerably more confidence in Rommel.

Regarding the positioning of the *III Sturm-Flak Korps* and the *7 Nebelwerfer Brigade,* these units would have been easily controlled by Rommel. *OKW's* fixation on the panzer divisions was so great that they all but ignored the dispostion of these two very valuable units.

Players wishing to judge for themselves the viability of a German victory in Normandy should find this variation to be the 'best case' outcome of the range of possibilities. It becomes evident that in one respect the German problem was one of time and distance. Properly and decisively positioned, they had the combat units to stop an invasion. If they could have marshalled their resources to that one critical point, they could have won on the water's edge.

XII. OPTIONAL RULES

The following rules are minor additions to the game system that the designer considers to be less than crucial to the overall effect of the simulation. They do, however, address historical aspects of the campaign that purists may feel are worthwhile:

A. COUNTER-BATTERY ARTILLERY FIRE

This section of the optional rules simulates a specialized and highly technical type of artillery fire mission called 'counter-battery'. The purpose of counter-battery is the location and neutralization of enemy artillery positions using flash- and sound-ranging, oblique aerial photography, and other sophisticated intelligence-gathering techniques:

1. All ranged-artillery units EXCEPT anti-aircraft, *Nebelwerfer,* and coastal defense artillery may engage in counter-battery fire.

2. Counter-battery fire may only be directed against enemy RANGED-artillery units. Artillery-type units with a range of '1' may not be targeted for counter-battery fire. Non-artillery units may not be targeted for counter-battery fire.

3. Counter-battery fire is executed during the friendly DEFENSIVE fire phase. The procedure is the same as for normal artillery fire, but with these exceptions:

a. Friendly units are not required to be adjacent to enemy artillery units for those units to be fired upon.

b. No more than one enemy unit counter may be fired upon at a time. Each target unit requires its own fire resolution die roll.

4. Counter-battery fire is resolved on the *Counter-battery Fire Table.* To determine the effects of counter-battery fire, cross-index the total number of strength points firing with the TYPE and SIZE of target unit being fired upon. The number in the box at the intersection of these two variables represents the MINIMUM number that must be rolled on one die to DISRUPT the target unit. (EXAMPLE: Six artillery strength points fire against an *artillery battery;* a die roll of '4', '5', or '6' is required to disrupt that unit.)

5. Normal supply rules apply to counter-battery fire except that BATTERY sized firing units do not cause their supporting HQ unit to consume supply. Also, BATTERY sized units do not count against an HQ unit's maximum subordinate unit capacity when firing counter-battery. In effect, then, a battery may fire "free" providing it can trace a supply route to a supplied HQ unit of the proper type (i.e., subordinate units must still trace the supply route to their own divisional HQ unit).

COUNTER-BATTERY FIRE TABLE

# S.P.'s FIRING	Type of Target Unit: NW (all)	Mortar (all)	RR BTTY	Arty BTTY	Arty BTLN	Arty GROUP	CD BTTY
1-2	3	—	4	6	5	—	—
3	2	6	3	5	4	6	6
4	2	5	3	5	4	5	6
5	2	5	3	4	4	5	6
6	2	4	3	4	3	5	6
7-9	1	4	2	3	2	4	5
10-12	1	3	1	3	1	3	5
13-18	1	3	1	2	1	2	4
19+	1	3	1	2	1	1	4

KEY:

1. '—' = Disruption not possible.
2. **NW** = *Nebelwerfer;* **RR** = Railroad; **Arty** = regular ranged artillery; **CD** = coastal defense; **BTTY** = Battery; **BTLN** = Battalion; **S.P.** = strength point.
3. Number in box represents MINIMUM die roll required to disrupt target unit.

BRIDGE DEMOLITION TABLE

Die Roll	Range to Nearest Allied Combat Unit: 1 HEX	2 HEX	3 HEX	4 HEX	5 HEX
1	—	—	—	—	—
2	D	—	—	—	—
3	D	D	—	—	—
4	D	D	D	—	—
5	D	D	D	D	—
6	D	D	D	D	D

KEY:

1. '—' = No effect: bridge not destroyed.
2. 'D' = Bridge destroyed: place CUT marker on bridge symbol.
3. If Allied combat unit occupies one of bridge hexes, add '2' to die roll.

B. BRIDGE DEMOLITION AND REPAIR

For a modern army, the destruction of bridges over impassible terrain represents a major, although temporary, obstruction. Modern engineering techniques reduce bridge rebuilding time to a matter of hours or days:

1. Only German *Pioniere* units may destroy the bridges represented by the printed symbols on the mapboard.

2. The German player may attempt demolition procedures against a road or railroad bridge whenever the following two conditions occur:

a. A *Pioniere* unit occupies either of the two hexes containing the bridge symbol at the beginning of the German player segment.

b. An Allied combat unit is within FIVE hexes of the *Pioniere* unit that is attempting the demolition.

3. Bridge demolition attempts are executed during the German combat phase. For each demolition attempt, the German player rolls one die on the *Bridge Demolition Table,* cross-indexing the number rolled with the range column that represents the proper number of hexes to the nearest Allied combat unit.

a. A 'D' result means that the bridge has been destroyed. Use a 'CUT' marker positioned between the two hexes to indicate the demolished bridge.

b. SPECIAL: Subtract '2' from the demolition die roll whenever an Allied combat unit occupies one of the two bridge hexes.

c. Only one demolition attempt may be made against a bridge per turn.

d. A *Pioniere* unit may attempt to demolish more than one bridge if there are two or more bridge sybmols running into the hex it occupies. Each bridge is rolled for (and the die independently modified for each) separately.

e. Disrupted *Pioniere* units may not attempt bridge demolition.

4. Effects: Destroyed bridges are ignored for movement purposes:

a. Road movement is calculated as though the road ends in the one destroyed bridge hex and a new road begins in the other.

b. For railroad movement, the destroyed bridge hex is treated like an 'end of rail line' hex. All units entering that hex must stop and permanently end all rail movement.

5. Rebuilding Demolished Bridges: The Allied player may 'rebuild' a demolished bridge by simply keeping either bridge hex within the eight-hex supply range of an Allied CORPS headquarters unit for three consecutive turns.[7] Both bridge hexes must remain free of enemy combat units during this period of time:

a. During the replacement phase of the first Allied turn in which a Corps HQ unit is within eight hexes of a destroyed bridge hex, a '3' marker is placed on top of the 'CUT' marker.

b. At the beginning of the second turn, the '3' marker is replaced by a '2' marker.

c. At the beginning of the third turn, the '2' marker is removed and the bridge becomes fully operational.

d. The Corps HQ unit is not required to maintain a supply unit for bridge rebuilding purposes.

e. If an enemy combat unit enters or passes through either bridge hex, the rebuilding process is completely negated. All markers are immediately removed. The rebuilding sequence must be restarted whenever the bridge hexes are again free of enemy combat units.

C. HEDGEROW CUTTERS

'American Ingenuity' has, over the years, taken the lion's share of the credit for solving the bocage problem via the invention of the ingenious 'bocage buster' devices. These were plow-like contraptions that were mounted to the front of Allied tanks which then rammed holes through the hedgerows. Over the years, folksy recitations of this story have all but obscured the real impact of this device in the Normandy fighting. The passage of time has created a classic piece of American epic folklore.

Yes, there was such a device. In fact, there were a handful of different variations. No, it was not an instant panacea to the hedgerow difficulties, but it was a great propaganda device and morale booster.[78] (The bocage problem was 'solved' to a much greater degree when 'green' U.S. units learned how to execute small unit tactics as well as the Germans.)[79] Finally, it was *not* the exclusive stroke of genius of a draftee sergeant from Hoboken, but seems to have been developed more-or-less simultaneously by three or four individuals in both the U.S. and British Armies.[80]

Nevertheless, for anyone who likes fantasy, the following is Everyman's re-enactment of the invention of the decisive weapon, the All-American Hedgerow Cutter:

1. Starting on the 1 July turn, the Allied player rolls one 'American Ingenuity' die at the beginning of each ODD-NUMBERED turn. If a '6' is rolled, an anonymous American draftee invents the Hedgerow Cutter.

2. Whenever the Hedgerow Cutter is invented, AMERICAN combat units enjoy the following combat advantages:

a. U.S. combat units involved in infantry-armored combined arms combat increase their combined arms modifier by '+1' in all cases when attacking enemy units in BOCAGE HEXES.

b. This advantage applies ONLY to U.S. units and units of the French 2nd Armored Division.

3. This advantage continues until the end of the game.

XIII. SUGGESTIONS FOR MULTI-PLAYER GAMES

In most instances, THE LONGEST DAY will be played with two or more persons on a side. Experienced multi-commander game players recognize that a high standard of conduct must prevail to assure a smooth and pleasureable gaming experience. The following is a list of SUGGESTIONS for conducting multi-player campaign games. It is strongly recommended that these suggestions be closely followed:

A. Each side should be organized as a commander-in-chief ('C-in-C' for short) and subordinate commanders. See the *Chain of Command Chart,* for suggested divisions of responsibility.

B. Moves should be strictly timed. Each side should be allotted thirty minutes for movement. Resolution of combat, however, should not be charged against either side. This time limit can be adjusted to taste. For more than three players per side, add five minutes to the time limit for each additional player. NOTE: It is recommended that the first two turns NOT have time limits.

C. Movement and combat should be executed in an orderly fashion with all operations executed in a uniform pattern from left-to-right or vice versa. This pattern of execution should not change from turn to turn.

D. Subordinate players should be allowed to play their own game. Fellow players should not criticize an individual's method of play. Likewise, C-in-C's should not dictate positioning of any formation smaller than a division.

E. Subordinate players should attempt to execute instructions from C-in-C's conscientiously. All such orders from C-in-C's should be short, concise, and general in nature. (It helps to write them on 3 × 5 index cards prior to the start of each turn.) The C-in-C should formulate a strategic plan of operations, commit it to writing, and then attempt to execute it during the game via command instructions to his subordinates.

F. Mature personal conduct is extremely important when engaged in a multi-player game. Communications should be minimal and conversational in tone. Shouting, arguing, kibitzing, and malingering is simply boorish and should not be tolerated. The C-in-C's have the responsibility of controlling the tempo of the game. They should be, jointly, the timekeepers and the arbiters of rules disputes. They should ensure that each player segment is orderly with all subordinate players crisply executing the same phase at the same time.

G. An optimal number of participants is five; three Allied and two German. Many more players can be accommodated, however, providing that the game is well-organized and each player is allocated specific forces and specific areas of responsibility.

H. CHAIN OF COMMAND: The following chart outlines command responsibilities for various numbers of participants. These may be modified as suits the temperament of the players involved:

NUMBER OF PLAYERS	ALLIED PLAYERS:	GERMAN PLAYERS:
4	TWO:-British Commander. -U.S. Commander.	TWO:-C-in-C.[1] -Ground Forces Commander.
5	THREE:-C-in-C.[2] -British Cdr. -U.S. Cdr.	TWO: Same as above.
6	THREE: Same as above.	THREE:-C-in-C. -Wehrmacht Cdr.[3] -Luftwaffe Cdr.[3]
7	FOUR:-C-in-C. -Air & Naval Cdr.[4] -British Cdr. -U.S. Cdr.	THREE: Same as above.
8+	FIVE or more: -C-in-C. -Air & Naval Cdr. -Three or more Corps commanders.[5]	FOUR or more: -C-in-C. -Three or more Corps commanders.[6]

NOTES:

1. The German C-in-C should control the *German Strategic Entry Track,* the distribution of all supply and replacements units, and the allotment of reinforcements to subordinate commanders.

2. The Allied C-in-C should control the *Allied Unit Entry Track* and the distribution of supply, replacement, and reinforcement units. Additionally, he should control Allied air units if no Air & Naval Commander is present.

3. The division of forces between a *Wehrmacht* and a *Luftwaffe* commander easily simulates the confusing command structure of the German Field Army wherein *Luftwaffe, Kriegsmarine,* and *Waffen-SS* high commands all fought to preserve their autonomy within each theater of war. This is not an elegant division of forces for the two players involved and should produce some uneconomical application of resources.

4. With four or more Allied players, one player can be assigned the Air & Naval Commander function as an exclusive command. This job is broad enough to satisfy most players. In this situation, the C-in-C becomes supreme commander and logistics officer.

5. Each Allied subordinate commander should be assigned a permanent corps HQ unit. Divisional units are then assigned to him on a semi-permanent basis. A player may be assigned more than one corps HQ as required.

6. Each German subordinate commander should be assigned corps and divisional units on the basis of branch affiliation. That is, a player assigned the *IIss Panzer Korps* should be assigned *Waffen-SS* divisions, etc.

XIV. TACTICAL HINTS

The following essays were written by several individuals who participated in the playtest of *Longest Day*. All of these people are expert game players whose comments are worthy of close scrutiny. First time players should benefit from their experiences and insight:

OPERATION COBRA

by Dr. Richard Archer, Ph.D

Cobra is the aptly named American plan to strike swiftly and decisively at the over-extended German defenses and thus achieve a breakout from the Normandy beachhead. The build-up is over and the American strength is overwhelming. This campaign marks the end of the invasion and the beginning of the Battle for France. The American player is given the welcome opportunity to emulate Generals Bradley and Patton and bring about a fast-paced battle of movement which the Germans cannot win. The German player is charged with the awesome responsibility of postponing this imminent disaster where Fieldmarshal von Kluge failed.

Since the Americans are committed to using the carpetbombing attack on 25 July on the *130 Panzer Lehr,* it is tempting to follow the original plan. This involves first destroying the *130 Panzer Lehr,* pushing the U.S. armored divisions through the disrupted remains of that famous German unit, then rolling hell-bent for Avranches and Pontaubault. Unfortunately, following in the footsteps of the original will also get the American juggernaut stuck in the same 'no-man's land' of bomb craters left by the heavy bombers (+2 movement points) that plagued his predecessor more than the Germans! Furthermore, a major effort through the *130 Panzer Lehr* will run right into the only on-board German reserves, the *275* and *353 Infanterie* divisions.

As an alternative, consider an American thrust from the St. Lo area penetrating the lines of the *3 FS Division,* a weak formation with an incredibly wide front to defend. After breaking out, the American should drive on to Vire and Mortain and victory. Admittedly, this plan involves some rearranging of the U.S. armored divisions and forces the American spear-head right into the path of the late arriving Panzer Divisions. But all things considered, it offers the best chance for the "fast break" necessary to win the game.

In this strategy, the carpet bombing becomes the opening for a diversionary weak, attack. Regardless of where the American makes his big effort, he should attack up and down the line until the supply line from Carentan to the main thrust becomes too long to allow it.

From a tactical standpoint, the American must concentrate and move his artillery for maximum use and effectiveness. The light and medium bombers should not be used piecemeal, but concentrated as tactical air support for the main thrust in attacks on adjacent hexes. The independent armor units, on the other hand, should be distributed to several infantry divisions to spread the advantages of combined arms. Obviously, fighter bombers must interdict at Key road junctions to stall German reserves, reinforcements, and supplies.

The German player is in the unenviable position of reacting to the moves and potential moves of his American counterpart. First of all, he must shorten his lines as much as possible rather than simply placing his units blindly along the boundaries and into every salient. Second, he must discourage an attack through the *3 FS Division* by reinforcing them with most of *II FS Korps'* non-divisional units. Finally, he must place artillery and/or armor with infantry on the front lines to benefit from combined arms.

A winning German strategy will involve a gradual withdrawal while preserving a continuous line. Remember, there are no zones of control, except in rare cases. Supplies are too scarce for early counterattacks. They must be hoarded as the German falls back on his supply line. Late in the game they will be most plentiful just when they are most needed.

Since German mobility is hobbled by American airpower, the movement of on-board reserves and arriving reinforcements must be carefully planned. False starts will probably be fatal. In spite of increasing pressure, reserves must be maintained to blunt American thrusts. If the German can repeatedly place his forces between the Americans and their objectives, then victory will be his.

For players who enjoy a classic land battle-royal, *Cobra* is the best of the *Longest Day* scenarios. It focuses the players on the major elements rather than the frills of the grand tactical system, forcing them to think in terms of divisions rather than smaller units. It will make a general out of them.

FIGHTING FOR CHERBOURG AND BEYOND

by James Burnett, Jr.

The main element at Cherbourg is time. This is a very close scenario, and one turn either way makes for an easy win.

The Germans must try to delay the Allied advance as best they can. Their advantages include hills, bocage and the Cherbourg fortress system. The fight must still be won before the forts are reached, however. For the first two days, the Germans try to maintain a solid front, especially near roads and river lines. Salients at these points are well worth defending. For turn three through five the Germans retreat to the hills. This will require less units for the same frontage. At all times, the German player must conserve supply for full defensive artillery fire and hold his few mechanized units in reserve. The flak units need no supply so they should be withheld in the early stages. If the Allies do not hit the outer forts in force until turn six you should have the game.

Conversely, for the Allies, the name of the game is position and unit destruction. The first turn should be used to destroy or deplete as many Germans as possible. There is no reason to hold back supply. Massed defensive fires will be effective, since the Germans cannot afford to fall back everywhere. The Allied divisions must use combined arms where possible and mech move to threaten penetration, especially around hills. Moving next to a hill during a friendly player segment and past it during the mech move phase will really pay on turns three and four. Flak units must be hit by defensive fire, Allied forces must make at least enough advances to hit the outer wall on the fifth turn. The scenario is so well balanced that any waste of time or force dooms the offender.

In contrast, the campaign game allows the players nothing but time. Eighty-seven turns are enough to make errors; in fact, many errors, although no game will ever go that far. Minimization of mistakes and proper application of techniques is the key. Novice players are advised to practice the Normandy scenario for beach landing and advances and when the initial "set-piece" battle is mastered, to then go on to the "biggie". The campaign game is so large that an overall strategy must be first conceived and then followed by correct application of tactics. The strategy is not as simple as it first appears.

Both sides must remember the victory conditions and therefore attempt to attack/defend the south and west board edges. The battle proceeds, roughly, in these phases: (a) Landings and build-up; (b) US/US/Br hook-up; (c) drive to the coast; (d) drive on St. Lo, (e) assault on Caen; (f) drive on Cherbourg; (g) German counter-attack; and (h) *Cobra.* The Allies must solve the desperate need for ports for landing men and material. The Germans (except for those in Cherbourg) must be mobile and flexible when surrendering terrain (remember that Hitler was often wrong when he ordered hold at all costs). Both sides must guard against breakthroughs, being especially mindful of the defensive fire phase. Grand strategy, then, is fairly simple and mostly historical, although the Allies will have a very difficult time penetrating to the western coast. Basic stategy, however, is altogether different.

Where a grand strategic error discovered soon enough can be corrected, poor battle strategy can kill any chance of eventual victory. The tactical lessons will be repeated a thousand times during a game. The Allies must effectively use their air and naval force each turn. A destroyed rail net hurts Germany. Rangers and paratroopers should be in front of flooded areas because only they have adequate movement there. The Allies should press forward on all fronts until the Panzers arrive on July 1, and then mass their supplies in order to execute four-day-long offensives every two weeks. Replacement divisions should be held *without* supply until needed in the line.

The Germans should be keenly aware of the uses of strategic movement and supply. Headquarters of reinforcing divisions should hold eight hexes off the board edge until most of the division is able to enter the mapboard. The German line should be able to shift laterally three hexes in either direction at any time to pinch-off any Allied breakthroughs. The Germans need 250 units on the board after June 13th to hold a continuous line. Supply must be husbanded but giving a few extra to the Cherbourg garrison can pay enormous dividends later in the game. Do not let divisions get out of supply—they are too vulnerable in that condition! Flak is valuable, especially in cities and forts. Use *all* German assets to maximum efficiency.

Both sides should deplete divisions until they are no longer effective, then totally remove the battalions from the front line except for one unit. This unit serves as spotter for the supply-free single battery defensive fire. For attacks, combined arms are priceless. Place an infantry and an armored division on the same turf. They will both thrive. Supplies should always be spent judiciously, like money. Remember that a large number of half-supply units on the board actually decreases the amount of supply capacity in the system. Consume half-supply units as rapidly as possible.

Basic tactics are virtually the same for both sides:
(a) Use CAM: #2 keeps attrition down!
(b) Attack river lines from at least one bridge if possible.
(c) Don't pay for the same ground twice.
(d) Attack at no worse than 4-1 unless you have units to spare and your opponent doesn't.
(e) Defend in depth when heavy artillery is present.
(f) Defend towns and road junctions behind lines (*Ost* and burned-out units are good for this).
(g) Keep divisions together!
(h) Keep an armored reserve.
(i) When attacking with a division, use one unit from the non-attacking divisions on each side to bolster its power without expending additional supply.
(j) If supply is plentiful, precede attacks with defensive bombardment.
(k) Make the use of supplies worthwhile; have an objective in mind.
(l) Don't worry about the twenty divisions which are 'doing nothing'; get the maximum out of the five attacking divisions which can be supplied for an entire offensive.

Finally, for the Allies, never cease pressing. For the Germans, pray for bad weather. We hope you enjoy the game as much as we did.

Cherbourg Player's Notes: From Both Sides

by Arvin van Zante

Most accounts of the Normandy invasion report little concerning the Cherbourg campaign. That's not too surprising. While Cherbourg's strategic importance was obvious (it was, in fact, First Army's primary objective), its fall was anticlimactic. Once the Allies had cut off the Crotentin peninsula, Cherbourg's conquest became, simply, a matter of time. The Cherbourg scenario is much the same. The Allied player starts off with three full-strength divisions, the VII Corps artillery and attacked battalions, Allied air power, and, for one turn, American naval bombardment. Facing them are the shattered remnants of three German divisions, two Flak regiments, and an assortment of independent battalions. It is a classic defensive situation. Given the forces available, the fall of Cherbourg is inevitable. It is simply a question of when.

And, appropriately, time is the victory criterion for the Cherbourg scenario. The Allied player has seven turns in which to occupy and hold five city hexes in Cherbourg-Octeville. Anything less results in a German victory. Surprisingly, that criterion is not easy to achieve. While the Allied player has the bulk of the strength in the game, he also has the burden of attack. And the Crotentin peninsula is imminently defensible. The Allied player must slug his way through bocage, forest, rivers, cities, and hills before even reaching the fortified areas outside of Cherbourg. This is difficult terrain and the Allied player can expect to spend 3-4 turns clearing it. With another 2-3 turns necessary to breach the landfronte fortifications and hills outside Cherbourg, and 1-2 turns to seize five city hexes, the Allied timetable will be tight, if not impossible. Many Allied players will find themselves lying exhausted and frustrated outside Cherbourg at the end of the game.

Allied Player Notes: Your prime objective should be to create and maintain a fluid battle situation. There is, simply, too little time to slug past each of the defensive positions enroute to Cherbourg. You must penetrate the German player's initial lines and overrun the subsequent defensive positions before he can reform. Ironically, this penetration will be largely created during your defensive fire phase. The way the sequence of play works a player can move up to weak positions in an opponent's line with mechanized movement, blow holes in that line with defensive fire, and then exploit those holes during regular movement. And all before his opponent can respond. Given the terrain and the game system, this is the only way you're ever likely to achieve a worthwhile breakthrough. One or two such breakthroughs are essential if you're to reach Cherbourg in seven turns.

Tactically, this means two things. First, you must be sure that your mechanized-movement units end their friendly combat phase behind friendly lines, i.e, not adjacent to an enemy unit nor in a position where a stray enemy unit can move up and pin them. If necessary, keep them out of the battles. You only have six units which can use mechanized movements. Some of them (at least the armored car battalions) must be free if your defensive fire is to be a threat. And be warned, most German players will be willing to spend their limited supply stops in an attempt to eliminate your mechanized-movement units. So don't leave them next to heavy concentrations of German units and/or artillery.

Second, you should maintain a sizeable artillery reserve (usually 24-36 points from the 7th Corps artillery) to use during your defensive fire phase. You'll be tempted to use your reserve to increase the odds in offensive attacks, but don't do it. Each factor in your reserve threatens *every* German position within range of that unit (and an Allied mechanized-movement unit). To the extent this forces the German player to overload or abandon otherwise worthwhile defensive positions, the artillery reserve is worth several times its face value. Of course, many German players will elect to fall back rather than face your defensive artillery. Even so, you'll be making rapid progress towards Cherbourg. And the sooner you can start your final assault on Cherbourg, the better your chances of seizing five city hexes by the seventh turn.

German Player Notes: Your position is purely defensive. You have neither the resources nor, hopefully, the inclination to mount a major attack. But don't despair. You've got good defensive terrain available and enough units to utilize it. If you can keep the Allied player outside of the *Landfronte* for four turns, you should win the game. But to do so, you'll have to utilize your terrain and units to their full value.

The hills are your best terrain because they double your strength and confer a zone of control. Defend them strongly until the line appears ready to collapse. Then leave a delaying unit on the hill to disrupt the Allied advance. At the least, it will force the Allied player to use his defensive artillery against something other than your main defensive positions. As for the other terrain, river lines are good because they prevent advances after combat (unfortunately, they're vulnerable to Allied defensive fire), cities double infantry strength and block road lines, and bocage and towns limit advances after combat. Finally, the *Landfronte,* with its inherent zone of control, should provide a one or two turn breathing space when your outside line finally collapses.

Your two mechanized units are your most important defensive units. They should be positioned so that they can reinforce any of several defensive stacks during their mechanized movement phase. This will force the Allied player to attack each of the positions at greater odds, effectively multiplying the value of your mechanized units and/or allowing them the role of spoiler in an important Allied attack. The Flak units are the next most valuable since they require no supply and, therefore, should be fired every phase. Where possible, they should be stacked with infantry units to obtain the C.A.M. benefit, and positioned so that 12-14 points of combined fire can be directed against an attacking hex (preferably against an Allied mechanized-movement unit). Ranged artillery and headquarter units should be used to cover those defensive hexes behind the front lines which could be compromised by an Allied advance after combat.

Of course, you must also be aware at all times of how much Allied artillery is available for defensive fire, what hexes it can hit, and what hexes can be spotted by the Allied mechanized-movement units. And you must do whatever you can to reduce the impact of the Allied defensive fire. Where possible, pin the Allied mechanized-movement units. It's better to lose a unit than an important defensive position. And, if you can't guarantee a position's security, back it up with reserve units to prevent Allied penetration. But above all, delay, delay, and delay. Time is on your side and, if you play carefully, you should win.

XV. DESIGNER'S COMMENTARY AND NOTES

[1] Being sometimes disappointed by critiques that produce well-intended but misguided criticism of designs based on less-than-perfect perception of the design process, this designer humbly offers the following comments in an effort to allow the player or reviewer into the innermost workings of the simulation design process:

THE MAPBOARD:

[2] **GAME SCALE:** The most crucial design parameter—one that has a very great impact on the success or failure of a design, is the concept of *scale*. There are optimum scales and there are scales that are less than ideal. These are not flexible determinants but rather depend upon the establishment of clear and concise goals to be properly and rationally selected. The game scale for *THE LONGEST DAY* was fixed at two kilometers per hex and one day turns. The two kilometer scale is ideal for battalion level games. Unit frontages conform to a nice average for attack and defense frontages for units of battalion size engaged in combat.[81] This scale also allows useful artillery range attenuation. Anti-tank units fall within a 2000 meter practical range and thus require no attenuation. Mortars and *nebelwerfers* have a range of two to four hexes, re-creating their role of powerful but very tactical weapons systems. Note, please, that this use of a two kilometer scale makes the concept of 'zone-of-control' an exceptional rather than a general phenomenon. This very limited zone-of-control concept reflects the importance of either high terrain or previously prepared positions in exercising control over a hunk of terrain. Control equals observation. If one can see into an area, then one can call divisional artillery or battalion weapons fire into that area and thereby control it. If one cannot see into it effectively, then it becomes difficult to prevent enemy movement through that area.

[3] **TERRAIN:** The essence of designing a mapboard is the *interpretation* of the actual topography, elevation, and vegetation and selecting key aspects of the myriad terrain detail available. This terrain interpretation must be executed in close relation to the design system. Terrain detail is only important insofar as it impacts on the play of the game as determined by the design. BOCAGE seems to dominate everyone's thinking about the Normandy Campaign. It has been misunderstood in some respects. First, 'hedgerow' is NOT necessarily the same thing as 'bocage'. The bocage country in the Normandy-Calvados area of France is not a natural phenomenon, but rather resulted from the peculiar pattern of intensive agricultural activity endemic to Western European Marine climatic conditions. It is most directly described as a tradition of intensive agrarian subdivision characterized by fence-like hedges which have developed over the generations as receptacles for mineral and organic wastes from the fields. Over the years, the rooting of scrub vegetation and trees in the walls of refuse has created tough, formidable barriers. Hedgerows, on the other hand, are a popular form of topiary found in literally all parts of the world, perhaps most prolific in jolly old England. It is not necessarily 'bocage', however! Yet, readers will find reference to "fighting in the hedgerows" in just about *every* account of the fighting in *all* parts of France and assume that *bocage* was literally *everywhere*. It was not. These unfortunate references are hack stereotypes of the same type that sees all artillery preparations as 'barrages' and all German machine guns as 'Spandaus'. True bocage country occupies a limited and easily delineated part of France as shown on the mapboard. Specific references to hedgerows are really just that: hedges, but not of the severe barrier-type found in the bocage country.

[4] The presence of bocage hindered both offensive and defensive operations.[82] Bocage became an overbearing preoccupation *not* because it was so impregnable (certainly the terrain in the Italian Campaign was far worse) but simply because, for the Americans, there was so gawdawful much of it. A few acres of bocage in any other battlefield would have hardly merited mention.

[5] There are at least four major terrain types in the area represented by the mapboard; (1) bocage; (2) coastal plain (east and SE of Caen); (3) coastal mountain (Cherbourg area); and (4) bessin country (the restricted area between Omaha Beach and the Aure River, west of Bayeaux). Each type of terrain has its own combat effects profile and will create it own brand of combat. Note that the topography of most of the mapboard is ill-suited to classic 'mobile warfare' as stereotyped in other European fighting.

[6] **MAPBOARD DETAILS:** There are over 2,000 city, town, and village names on the mapboard.[83] Every substantial municipality short of hamlets and crossroad inns and churches are present on the mapboard. If ALL named locales were put on the mapboard (which would have to include large farms, chateaus, mills, etc.) it would be very easy to name EVERY hex. The town locations are 100% accurate with only minor displacement to avoid hex side intersections. All other features have been slightly altered to conform to the hex grid.

[7] The representation of the road net includes *Routes Nationales* (major paved highways) and important secondary roads (single or dual-lane hard-topped.)[84] Actually every hex contains roads of some sort and that is the base-line for foot and horse movement. Cities, with their narrow streets, right angle turns and probable bombardment rubble are slower than open roads. BRIDGES were critical to rapid movement, but not to crossing rivers since both sides enjoyed a relative prosperity of termporary bridging equipment.

[8] **RAILROADS:** The mapboard road net and the *German Strategic Movement Track* combine to form a very effective representation of the transportation system in France.[85] Historically, the *tactical* rail net in Normandy collapsed two weeks after the invasion under the weight of bombardment from Allied medium and light bombers.[86] Once this happened, entry of reinforcements and supplies to the battlefront was slowed greatly.[87] The rail movement rules reflect the fact that rail movement was rapid enough so that the real limitations on daily distance travelled were the delays at urban rail yard bottlenecks ('cities') and at destroyed bridges and rail lines, etc. ('cuts'). Thus a 'movement allowance' for rail traffic becomes cumbersome and inappropriate. The severe strain of the massive volume of incoming rail traffic on the badly battered French rail system precluded intra-mapboard rail movement. The equally-perilous return trip of the trains after off-loading is not represented in the interest of brevity and because the Germans would have found engines and rolling stock *somewhere* to make up new trains even if none of them ever returned from Normandy.

[9] **FORESTS:** There is a relatively large amount of 'woodland' in this part of France. Those forest hexes dotted over the mapboard are for the most part representative of carefully maintained forest preserves of a dense nature. Their main effect is an impediment to observation. Being laced with roads and trails their effect on movement is minor.

[10] **SWAMPS:** There are two types of inundated land represented on the mapboard; naturally occurring swamps and purposefully flooded coastal lowlands. Of the two, the swamps were the more imposing barrier, although both types were serious obstacles to mechanized movement. (The locks controlling the canals carrying water into the lowlands behind Utah Beach were major objectives of the air drops. Since the drop areas were already flooded, the effort went for naught. It would not have been decisive in any case since, in most areas, the water was no more than ankle deep!) Throughout the campaign, operations were shaped by the presence of swamps and flooded lowlands on both flanks of the Allied beachhead and behind Omaha beach.

UNIT COUNTER SYMBOLOGY

[11] The standard counter symbology used in most wargames was abandoned in *THE LONGEST DAY*. This was no easy decision. The familiar 'crossed bandoliers' and 'tank tread' symbols have, over the years, become important conventions in the hobby. Most people know what they symbolize as soon as they open a wargame box. Why then abandon the familiar? Because a superior system was available. The unit counter symbology used in *THE LONGEST DAY* is a close derivative of the actual WWII German military notation system.[88] For the purposes of this game, it was judged to be worthwhile to require game players to learn an entirely new system. Its disadvantage of unfamiliarity is offset by the much greater amount of historical/technical information the system could convey. More directly, the German system is much better than the NATO system in portraying modes of transportation. This made differentiation of function based upon symbology an efficient approach to use when projecting the rules.[89] Since the German system is able to show more detail, it is capable of showing distinct differences between assault gun, tank destroyer, and full-tracked divisional artillery battalions which, under the NATO system would all be represented by the same symbol. The end result was a marked simplification of the rules in certain key areas. As an added 'goodie', however, the system is capable of imparting a considerable amount of historical information without adding complexity on top of complexity. This was accomplished through perceptual manipulation; elements that are bigger are more important. Consequently, the basic

combat information (attack-defense-movement) is blocked on the right and the unit symbol is blocked on the left. These two elements consume roughly 80% of the total live matter area of the counter. Secondary elements (stacking and artillery range), which are consulted less frequently during play, are composed of numbers only 50% the size of the basic combat information. HISTORICAL information, possessing the most elements (caliber, number of guns, country of origin, model number, number of AFV's, type of AFV, nationality,) is confined to about 5% of the live matter area and is about 40% the size of the secondary elements. In truth, they are as small as they could possibly be and still be recognizable. Why? Because these historical elements will only be consulted during moments of quiet reflection and will be totally ignored during the heat of actual play. Players like to know what those little hunks of cardboard are supposed to represent. Given the extreme variation in German organization, this historical description adds significantly to the esthetic enjoyment of the game.

COMBAT:

[12] **THE COMBAT SYSTEM:** The heart of any game is its combat resolution system. The combat system should be as straightforward and direct as the combat algorithms allow. Long, involved, overly-complicated systems are usually counterproductive since the degree of accuracy they strive for is well beyond the capability of any (limited data base) manual simulation.

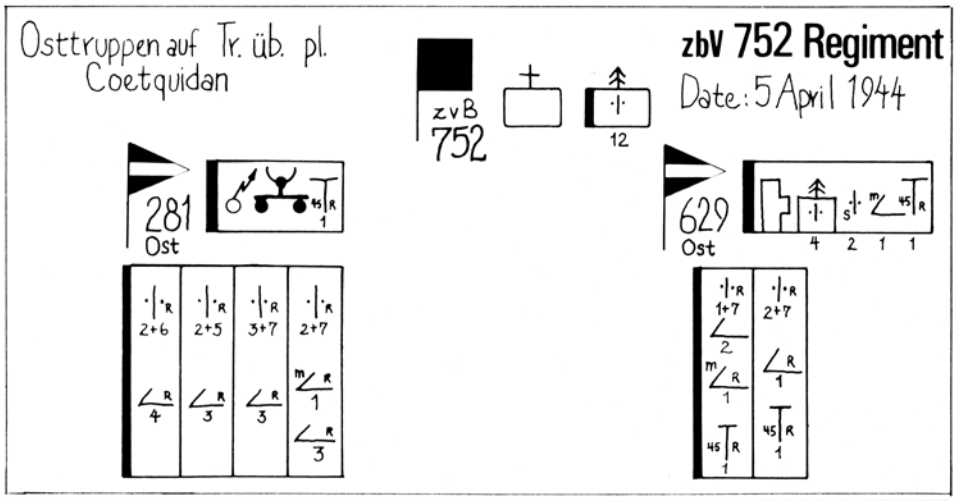
[13] The combat system used in *THE LONGEST DAY* is simple. This does *not* mean that it is comparatively less of a simulator when compared to other, more complicated, combat resolution systems. It simply recognizes the limits of simulation accuracy and does not pretend to be able to exceed those limits. It handles its main function smoothly and directly. What is that? The main function of this combat system is to regulate the dissolution of combat divisions. This is an *attritional* combat system as opposed to a combat system in which higher payoffs are awarded for specific *maneuver* situations. The Germans were always looking for that decisive mobile armored battle. Instead, the Allies offered only a grudging attritional battle in the bocage. Even though this wore down both sides, the results were much more debilitating for the German Army in France. A step-reduction system becomes the best way to handle this rather slow disintegration of units. This system can be more complicated than other types of systems, due to the shuffling of substitute units. But, short of using a rote roster system, it allows a unit to be expressed through a *process* over time rather than simply frozen numerically at some previous time frame. It also allows a designer to evaluate a unit's 'tenacity', 'durability', or 'survivability' by looking at its other numbers at lower step strengths. (The percentage of combat effectiveness lost when units lose steps varies from type-to-type and individually from unit-to-unit.) A flashy, highly mechanized battalion may have a higher attack strength than a foot infantry unit when they are both at full strength, for example. Yet, a certain percentage of casualties may affect the mechanized unit *more,* in terms of effectiveness, than the foot unit. Remember, 10% casualties to 100 men still leaves 90 men, but 10% damage to a battalion communications net may result in a complete shutdown of that system.

[14] Perhaps the most controversial aspect of the game will be the manner in which the organizational structures of the three different armies have been modelled in terms of translating large military formations into discrete collections of individual unit counters. Conceptually, this is a DIVISIONAL-level game. Players should think and act in terms of maneuvering divisions, not moving miscellaneous battalion-sized units. Major decisions in the game revolve around divisions even though their activities are resolved in terms of their discrete battalions. Players maneuver in divisions not because of proscriptions in the rules, but rather because efficient play (read: winning play) requires that supply and combat strength be husbanded. Thus, a good player will attempt to use nine battalions from one division instead of three battalions from each of three divisions, NOT because there is a specific prohibition on the number of divisions that can be used in an attack, but rather because *good play* requires that only one supply unit be consumed in the attack instead of three supply units.

[15] **FUNCTIONAL ORGANIZATION:** The unit counters which make up a particular division reflect that unit's *operational* organization and not necessarily its Table of Organization and Equipment. Since the Allied armies deployed their organic and attached anti-aircraft, anti-tank, machine gun, and engineer battalions as platoons, companies, and batteries, they should not be rendered as distinct unit counters in the game. Rather, they should be represented as arithmetic increases to the combat strength of the maneuver battalions as in real life. Thus most Allied maneuver battalions in the game are heavily reinforced over their normal TO&E strength. Even the German divisions, which were forced to deploy combat support units as maneuver elements in many cases, were still able to supplement their battalions with regimental heavy weapons. The result is a FUNCTIONAL representation of the division in terms of its discrete maneuver elements. This accounts, in large part, for the difference in 'look' between the German and Allied armies.

[16] **ARTILLERY BRIGADES:** The U.S. artillery brigades are actually an artificial 'bookkeeping' device used in an attempt to reduce the total number of unit counters. Each brigade represents three battalions of artillery of similar caliber. Historically, the brigade numbers used refer to GHQ artillery group headquarters which were real headquarters staffs intended for use as intermediate command echelons between corps and the battaions. They were rarely used that way and became zone-of-the-interior headquarters, line-of-communications, administration, and logistical staffs. The divisional artillery battalions were also amalgamated for the sake of simplicity since playtesting found that U.S. artillery was rarely used singly in a 'pot shot' manner but rather in concentrations of a dozen or more battalions. The use of brigades is simply a logical expedient and certainly anything that can reduce over 200 artillery counters to 70 brigade counters can't be too bad. Unfortunately, the attack strength was simply too high to allow that kind of concentration in British units where many regiments contain 72 tubes.

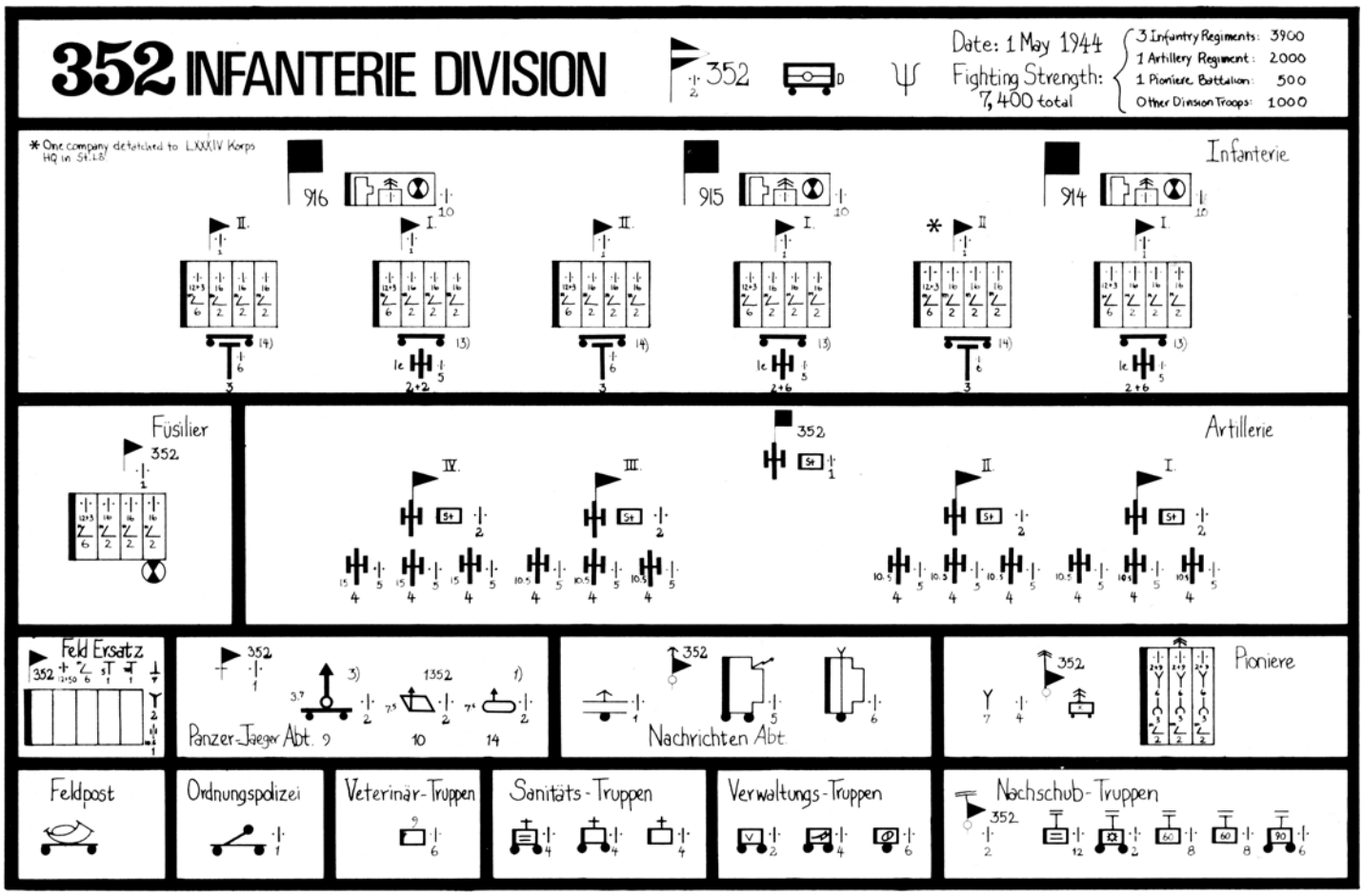
[17] **NAVAL AND AIR POWER:** *THE LONGEST DAY* is a land warfare game. Any naval/air subsystems employed should be designed to facilitate and enhance the land system, not fight with it for attention. The naval/air subsystems used in the game have been abstracted, but that is not to say they have been made simplistic. Critical decisions are made by both players in the naval/air subsystems which impact strongly on the land campaign. The abstraction is smooth and natural, not forced. As land forces commander, the player sees the application of naval and air forces without being bogged down in the mechanics of that application. He can manipulate these forces without being accountable for the actions of each and every unit involved.



zbV 752 REGIMENT: This was another German expedient that illustrates the German's clever use of resources in the face of adversity. The *zbV 752 Regiment* ('zbV' translates roughly as "for special employment") was a redundant headquarters staff that was pressed into service to control a hodgepodge of coastal defense units. In early April, it controlled the *281 Ost* and the *629 Ost* battalions, as illustrated in the diagram. But by 6 June, however, it controlled the *636 Ost* and the *797 Ost* battalions, as well as several security units in the city of Granville and the three battalions of the 30 Mobile Brigade.

By any estimation, the *zbV 752 Regiment* was an ordinary, unimportant unit. It does, however, illustrate an important idea: By employing the redundant headquarters to control a motley collection of Russian P.O.W.'s, the Germans saved themselves an entire coastal division. Along the stretch of coastline between the *243 Infanterie Division* on the Cotentin Peninsula and the *77 Infanterie Division* on the Brittany Peninsula stood only the *zbV 752 Regiment* to cover a distance of over eighty kilometers.

History, of course, proved the wisdom of this expediency.



352 INFANTERIE DIVISION: This was the division that Allied intelligence sources did not even know existed on D-Day! It was a full-strength, first-line infantry division that was inched forward before the invasion under the noses of the Allied planners.

Typically, the division possessed only limited motorization in its service-support and combat-support elements. It was, to the invader's misfortune, otherwise at full strength in weapons and manpower. The *Panzer-Jaeger Abteilung* was particularly strong for a unit stationed on the French coast. It had three batteries; one with fourteen 75mm PAK's on full-tracked chassis, another had ten *SK-III's*, and the third had nine towed 37mm FLAK guns. The *pioniere* battalion was a full-three companies strong, a rarity for units in France. Having been recently re-built, it possessed a full-strength *Fusilier* battalion and a well-armed *Feldersatz* battalion.

The *352nd* does not fit the typical image of the 'weak static division'. It wasn't. The ferocity of the fighting on Omaha Beach, in which this unit engaged, stands as partial proof of the inevitability of success of the D-Day landings. Omaha was a 'worst case' situation in which the Germans positioned a strong unit on the waterline without the Allies' knowledge. It was a near-run thing, but the US battalions still got ashore and stayed ashore. It is difficult to imagine that better German awareness of the Allied intention to land in Normandy could have provided a radically different outcome.

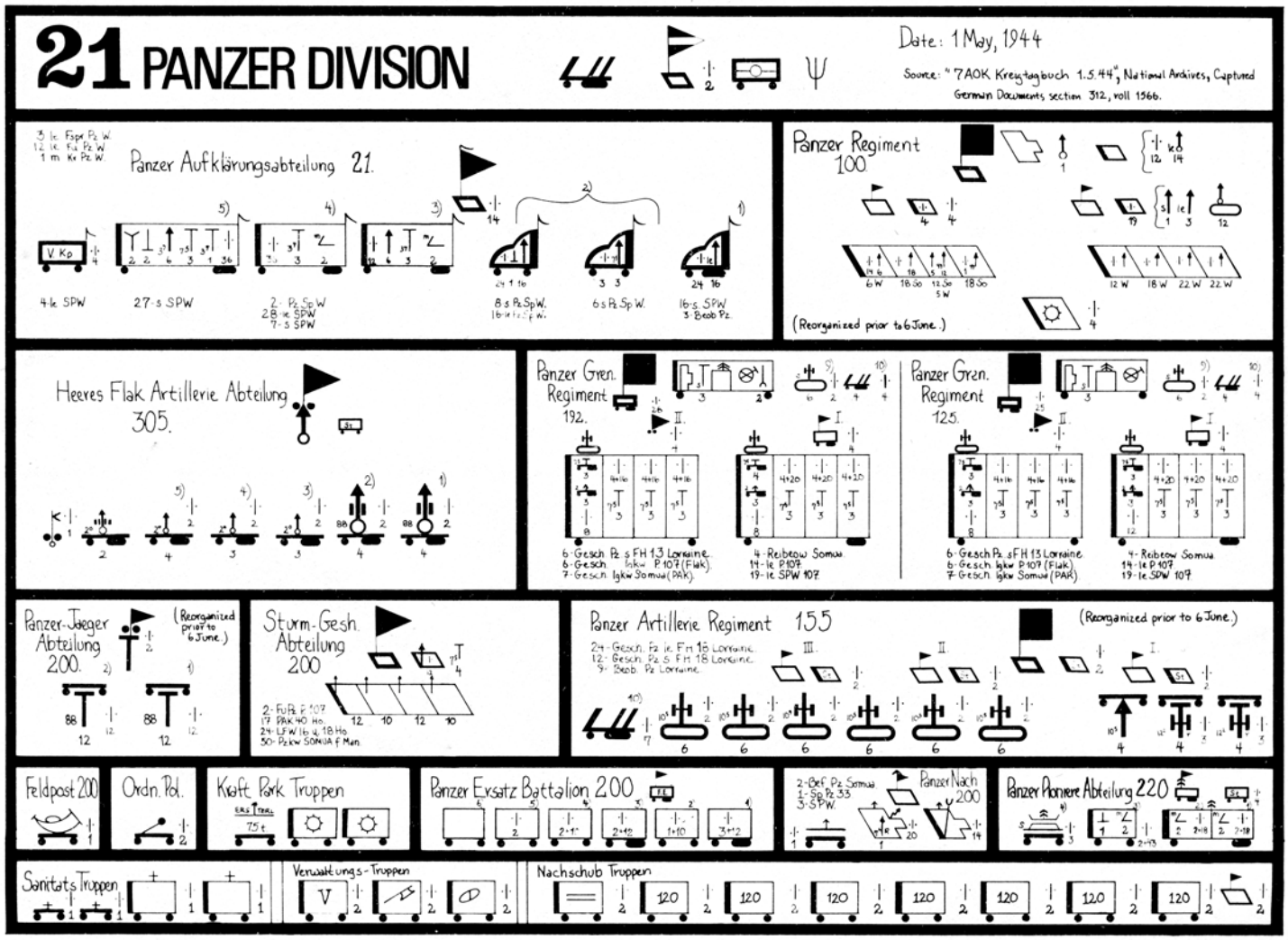
[18] **NAVAL MODELLING:** All things naval have been abstracted to the maximum because there are very few truly critical aspects to naval gunfire bombardment. The only real area of concern for the player is the raw application of firepower on the target. It simply boils down to 'how much?' and 'how far?' The *Naval Bombardment Table* illustrates the salient point about naval support fires: when it was good it was very, very good and when it was bad it was totally ineffective. Naval gunfire depended quite heavily on observation. If the target was not *clearly* observed, the naval Forward Observation Officer would not and could not call-in fire. Even on D-Day, the record for naval gunfire effectiveness was hot and cold. When they could clearly see the target and clearly discern friend from foe, they would blow the target away. When they could not clearly discriminate friend from foe, they were under orders not to fire at all. Even against beachfront targets, the 5-inch gunfire from destroyers (hands-down the most effective artillery fire on D-Day) was more often *not* called down on spotted targets because the presence of friendly troops could not be positively discounted.[90] That is why the table is of an all-or-nothing variety. The gunfire boxes loosely approximate individual ships, although this is somewhat generalized since the secondary armament of battleships appears as discrete boxes in the 'CA' section and the British monitors have been combined with other battleships. Note also the comparative unimportance of battleships in terms of numbers and overall gunfire strength. Historically, the 5-inch gunfire from the destroyers was the most important type of fire delivered.

[19] **AIR POWER MODELLING:** Air power effects over a battlefield are very complex and very subtle phenomena. After much testing and analysis, it seems that no matter what one does insofar as representing the effects of airpower in the game, a total solution will remain illusive. The compromise solution used in the game system handles many of the aspects adequately although it is a bit heavy-handed in representing close air support which was not that effective at this stage of the war. What passed for close air support in June, 1944 was not exactly the same thing as the Marines would be doing in the Pacific six months later. The degree of co-operation developed in the bocage fighting was rudimentary compared to later developments. Air interdiction, however, was effective. It was effective not because of the *material* damage it inflicted but because of the psychological damage it did to the enemy with its corollary effect of paralyzing German movement. Yes, air interdiction inflicted casualties, but not to such a degree as would register as a step-reduction loss in the game. Even the *130 Panzer Lehr Division,* an oft-cited example of interdiction attrition, suffered only about 15% permanent losses on its long approach march to the Normandy battlefield.[91] Such a figure could not be shown as a step loss in this system. No, the most serious effect of Allied interdiction from the German point of view was the serious disruption of movement and the fragmenting of individual units of divisions on long road marches. The loss of divisional cohesiveness proved critical as it led to piecemeal commitment of the panzer divisions, thus thwarting the 'big bang' offensive sought by the German high command.

[20] **FIREPOWER SCORES:** Firepower scores were calculated for all combat unit types using the concept of the 'reinforced battalion' (cited above) to generate a range of firepower values. These values were then modified by type

of arm (infantry, airborne, armor, artillery, etc) to reflect operational strengths and limitations peculiar to each. Finally, individual units were modified to reflect levels of experience, weapons idiosyncrasies, leadership, and historical battlefield performance. The final modified score became the basis for conversion into attack and defense strength values.

EXAMPLE: A score of 26.41 is reduced by the lowest common denominator to 6.6 which yields an attack strength of '6' and a defense strength of '7'. These strengths were skewed one way or another for certain classes of units. For example, analysis showed that this system was not very accurate at assessing Allied airborne units. For these elite units, their value was not vested in their attack strength as one would normally assume with shock troops. Being essentially light infantry, they do not put out a high volume of fire. Instead, the mark of airborne units was the tenacity with which they held onto strategic terrain.[92] Therefore, the defense strength becomes the airborne's strong suit, converting a 4.01 score into an attack strength of '3' and a defense strength of '5'. Conversely, Rangers and Commandoes are shock troops whose staying power has been sacrificed for initial strike capability.[93] Rounding up for defense strengths and down for attack strengths may seem rather arbitrary, but it does have the virtue of integrity. This is because these firepower scores were not meant to disciminate between offensive fire and defensive fire. One simply calculates throw weight of a unit and assumes that weapons can fire as efficiently when their operators are defending as when they are attacking. Therefore we simply assume that it is easier to defend than to orchestrate an attack since in defense the weapons have the advantage of pre-plotted final fires as well as fields of fire for company and battalion weapons. (This designer firmly believes that knowing what NOT to include in a design is MORE important than knowing what should be included. In this case, the point is amply illustrated in the above methodology.) Firepower scores are a good method of rank


21 PANZER DIVISION
Date: 1 May, 1944
Source: "7AOK Kreigstagbuch 1.5.44", National Archives, Captured German Documents section 312, roll 1566.
Panzer Aufklärungsabteilung 21.
4 le. SPW
27 s. SPW
2 s. Pz. Sp. W
2 B. le. SPW
7 s. SPW
8 s Pz Sp W.
1 beritz. p. W.
6 s Pz. Sp W.
16 s. SPW
3 Beob Pz.
Panzer Regiment 100.
(Reorganized prior to 6 June.)
Heeres Flak Artillerie Abteilung 305.
Panzer Gren. Regiment 192.
6 s Gesch. Pz. s FH 13 Lorraine.
6 s Gesch. lgkw P 107 (Flak).
7 s Gesch. lgkw Somua (PAK).
4 s Reibgw Somua.
14 le P107
19 le. SPW 107
Panzer Gren. Regiment 125.
6 s Gesch. Pz. s FH 13 Lorraine.
6 s Gesch. lgkw P 107 (Flak).
7 s Gesch. lgkw Somua (PAK).
4 s Reibgw Somua.
14 le P 107
19 le. SPW 107
Panzer-Jaeger Abteilung 200.
(Reorganized prior to 6 June.)
Sturm-Gesh. Abteilung 200
2 s FuPz F 107
17 PAK 40 Ho.
24 LFW 16 u. 18 Ho.
50 s Pz kw SOMUA f Man.
Panzer Artillerie Regiment 155
24 s Gesch. Fz le. Fh 18 Lorraine.
12 s Gesch. Pz s. Fh 18 Lorraine.
9 s Beob. Pz Lorraine.
(Reorganized prior to 6 June.)
Feldpost 200
Ordn. Pol.
Kraft. Park Truppen
Panzer Ersatz Battalion 200
2 s Bef. Pz Somua
1 s Sp Pz 38
3 s SPW.
Panzer Nach. 200
Panzer Pioniere Abteilung 220
Sanitäts Truppen
Verwaltungs-Truppen
Nachschub Truppen

21 PANZER DIVISION: This was probably one of the most unique units in the entire theater. It had its origins as a field workshops unit in northern France in 1942. There, it converted a group of salvaged French AFV's into 'homemade' assault guns that did remarkably well when sent to Russia to support the desperate fighting near Leningrad. Returned to France, the assault gun battalion and the workshops unit were expanded into semi-divisional status and named 'Panzer Division West,' with the added proviso that it was required to MANUFACTURE IN THE FIELD nearly ALL of its vehicles and equipment from salvaged French stockpiles. Amazingly enough, this it managed to do. Hitler was so impressed that he re-named the division *'21 Panzer'*, in honor of the *Afrika Korps* unit destroyed in Tunisia. He had the entire German Army combed for veterans of the original *21 Panzer,* eventually adding 2.000 veterans to the new unit's ranks. By mid-1943, the new drafts had been assimilated and the unit was fully operational.

When the invasion struck, the division's *Panzer Regiment 100* was in the process of converting from *SOMUA's* and *R-39*'s (captured French AFV's) to *Pz-IV's* and *Pz-V's*. This conversion was disrupted, resulting in the commitment of the battalions at about half strength. The Regiment was unremarkable except that one battalion had an extra company of sixteen tracked weapons carriers (twelve 20mm AA and four assorted self-propelled ATG's) and the Regimental HQ had a company of fourteen *Flakpanzers*. On 1 May, 1944, all of the vehicles listed were 'homemade' conversions of captured French equipment.

The two *Panzergrenadier* regiments possessed a wealth of exotic, custom-made weaponry. Each regiment had a battery of six self-propelled heavy howitzers and a special battery consisting of four *nebelwerfers* and four 'mortar launchers' which were French SOMUA halftracks mounting sixteen French 81mm mortars rigged for simultaneous volley fire. Each battery could launch a stonk' of 24 150mm NW and 64 81mm rounds. These were found only in the *21 Panzer Division.* The weapons companies of each battalion were equipped completely with full- and half-tracked support weapons (six heavy howitzers [SP], three 75mm PAK's [SP], and three 20mm Flak [SP]). All of the vehicles were captured French. Many were heavily modified for *Wehrmacht* use.

Most of the combat support battalions were 'hefty' by 1944 standards. The *Panzer-jaeger Abteilung* consisted of twenty-four 88mm PAK's (later reorganized into three eight-gun companies). *Heeres Flak Abteilung 305* had another eight 88mm Flak guns. Additionally, *Sturmgeshutz Abteilung 200* counted forty-four assault guns of various types. Some interesting 'goodies' were tucked away in unusual places: there is the equivalent of more than an entire *nebelwerfer* battalion scattered throughout the division (one battery in each *Panzer Grenadier* regiment, one battery with the divisional headquarters, and another battery in the artillery regiment, for a total of sixteen weapons).

The *21 Panzer Division* was one-of-a-kind.

ordering most weapons of the era, but its effectiveness falls off at the edges. For this reason, Allied heavy and super-heavy artillery (240mm How, 8-inch How, 8-inch Gun, and British 9.2-inch Gun) were excluded. They behaved irrationally in the firepower model because their inherent advantages (penetration, accuracy, and blast radius) and disadvantages (relative immobility, very slow rate-of-fire, and ammunition supply problems) were not elements of the combat model used.[94] Obviously, it was not worth mucking up an otherwise clean and efficient model simply to accommodate fringe elements. And to simply plug them into the model in any case, even though they behave wildly, is worse. German heavy and super-heavy artillery was included in most cases because of their limited numbers and because they were of special types (rail and coastal defense artillery) in which mobility, supply and rate of fire were such that they could still be handled within the model.[95] Therefore, 32 Allied artillery battalions were excluded while six German artillery units of the same large caliber were included.

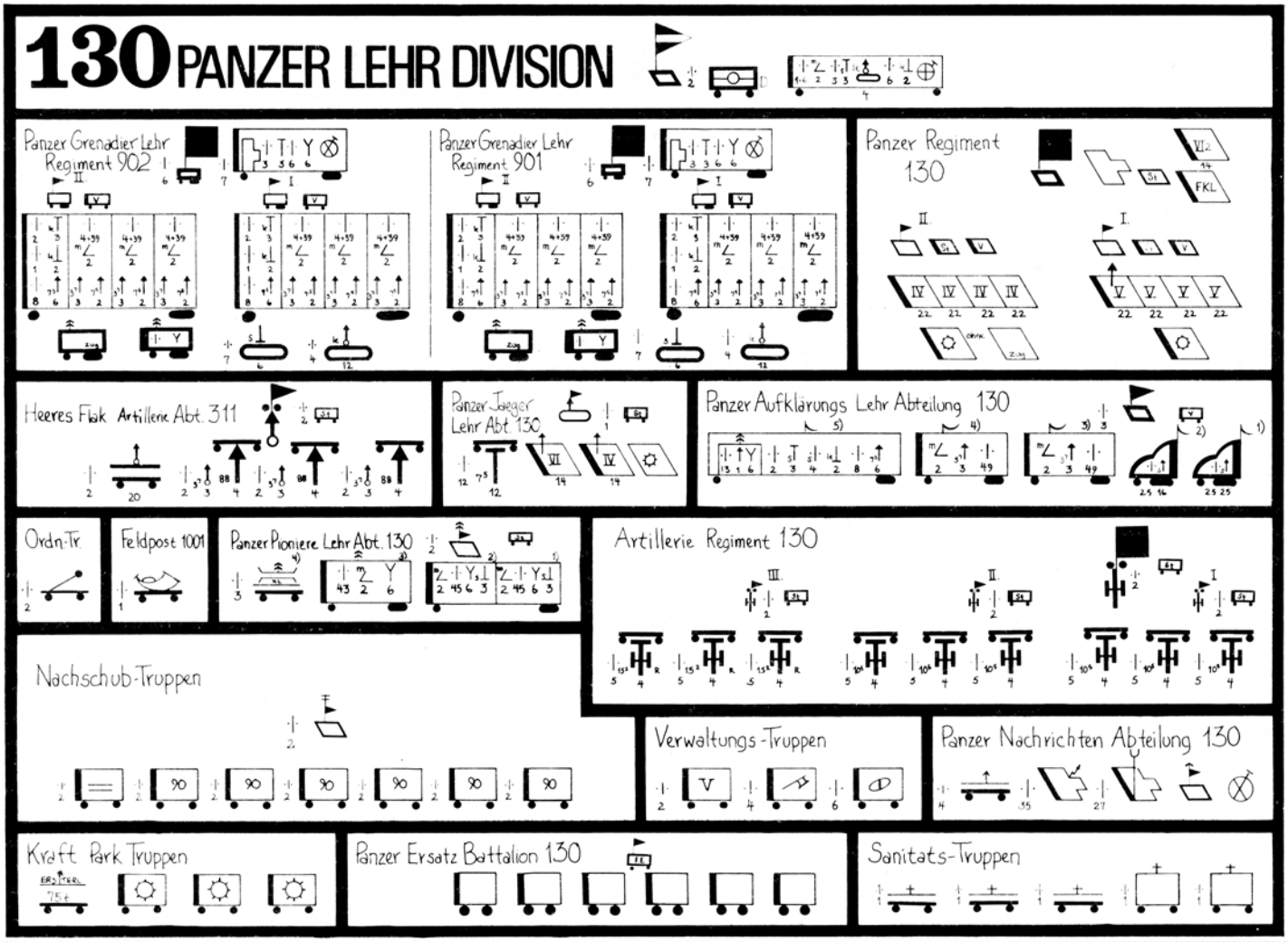
[21] **OTHER SUPERFLUOUS FIREPOWER:** For the same modelling reasons cited above, Allied GHQ anti-aircraft artillery was completely ignored. Indeed, historically, there were literally scores and scores of AAA battalions floating around guarding the beachhead, airfields, and supply dumps. They were rather quickly phased out when it became apparent that there was no task that could be found for them. Along this same line, certain secondary tasks of units were ignored. In particular, both US anti-aircraft and tank destroyer battalions were charged with the secondary role of field artillery support. For this they were extensively trained. Yet, it is abundantly clear that official reports claiming "substantial effects", "good results", and "valuable support" were mouthing bureaucratic double-talk for 'it really wasn't worth the effort expended.' By August, 1944 even the pretense of secondary artillery support had been abandoned by these units as most were kept near beaches, ports, and airfields as overblown defensive units. As the First Army report stated, "Experience in operations confirmed that the 90mm M1A1 mount is not suited for employment in the TD role in mobile operations . . . AA gun battalions are not at present organized or equipped to perform mobile TD as a primary mission." The report further advised that AAA weapons would be "useful" ground support, but *only* when retained "under AA control as a normal secondary mission, rather than be detached from the AA and allocated in small parcels to infantry battalions. The 40mm, due to its relative immobility did not prove satisfactory as a close support weapon."[96]

THE GERMAN SECRET WEAPONS:

[22] Perhaps the most amazing aspect of the Normandy Campaign is that the German Army managed to hold together for so long with so little against so much Allied material superiority. When the breakthrough and collapse did occur, it was like eggshells being crushed underfoot. The German divisions were mere shadows of full strength units. How did they manage to maintain cohesion for so long? How could they expend themselves so completely before breaking?[97] Part of the answer lies with the great body of GHQ troops used to strengthen line units. Since the German Army in Normandy had little more than twenty battalions of GHQ and Corps artillery (as compared to over 200 Allied GHQ artillery battalions), where did this great body of GHQ strength come from? It came from two types of remarkable units: the *III Sturm-Flak Korps,* and the three *Nebelwerfer* brigades.

[23] **THE THIRD STURM-FLAK KORPS:** This was a unique formation in the West although several of them were deployed on the Eastern Front. Units of the *Korps* were modified anti-aircraft batteries especially trained in anti-tank/assault artillery roles. The *Korps* consisted of four *Sturm-Flak Regiments,* each of three battalions, plus three independent *kampfgruppen* (KG 895, KG 995, and KG 300). The *Korps* could field in excess of 144 88mm AT/AA guns of the latest type. Under Luftwaffe control, it was a most powerful force. It was all-pervasive on the *Panzer Gruppe West/5 Panzer Armee* front from the beginning of the campaign to the end. Historians have long known that three of the *Sturm-Flak Regiments* were stationed at the mouth of the Somme River with orders to move immediately to the invasion front in the event of a landing. Yet, the whereabouts of the fourth regiment (even its existence) has not been widely known. Present research, however, has disclosed that this regiment was stretched out along the *Route Nationale* between Isigny and Bayeaux on 6 June 1944.[98] It was badly mauled by the Allied heavy bomber attack that was supposed to hit beach positions shortly before the first wave hit, but went long, instead. The survivors regrouped themselves and supported front-line troops all along the invasion front. The presence of this regiment partly explains how the Germans managed to hold a cohesive line in the center during that first critical day when there was very little German manpower available. It also explains the amazing number of references in Allied reports to 'fire from 88's in many areas where there were no divisional units equipped with them. Note that their field artillery potential is completely suppressed. They had neither the communications equipment nor the ammunition to do that type of work. The units themselves were rendered in the game as batteries to better demonstrate their ability to work independently and to support other units at a very low level. These units were under Luftwaffe control. They maintained their own administration, supply, replacement, and ammunition systems, which were independent of regular German Army channels. (Most of the *Ultra* intercepts were made from Luftwaffe signals; they disdained the use of ground line communications.)[99] Ammunition was hardly, if ever, a problem for Luftwaffe units; they had had four years in which to create huge ammo dumps throughout France. For that reason, units of the *III Flak Korps* are not required to use supply units. Players will note that, while these small units are powerful reinforcements to conventional ground units, they are very fragile if used by themselves. To be effective, these units must be well defended so that they can use their defensive fire capability and still survive. Their value is not in a passive defense strength, but in an aggressive defensive fire capability which accurately reflects how they were used historically and why they were feared so greatly.

[24] **"SCREAMIN' MEEMIES":** The second 'secret weapon' used effectively by the Germans was their various types of *Nebelwerfer rocket artillery. By 1944, the Nebelwerfer* had reached unparalleled importance in the German arsenal.[100] It was also the most numerous single type of German artillery in France. The reasons for this were simple; it was cheap to make, easy to use, and deadly effective. In the face of huge losses in precision-built artillery tubes and complex fire-control equipment, it was a successful expedient. Yet, it had its disadvantages: it consumed huge amounts of ammunition, it was hard to conceal due to its backblast, and it was not an accurate weapons system. These drawbacks aside, the weapon enjoyed a reputation among Allied soldiers second only to the Flak 88. This reputation was founded in the weapon's most effective characteristic, commonly known as the 'stonk.' The massed, simultaneous fire of a volley of rockets from a battalion of *Nebelwerfers* suddenly 'stonking' down on a target was many times more demoralizing to the recipients than the same number of rounds fired more slowly from conventional artillery. When an entire brigade fired, the effects were truly earth-shattering. There were three full *Nebelwerfer* brigades (7th, 8th, and 9th), one *Stellung* (fortress) *Nebelwerfer* regiment (the 101st), and the equivalent of four independent *Nebelwerfer abteilungen* committed to the Normandy front. This was the equivalent of 24 artillery battalions, as compared to the 22 battalions of conventional GHQ artillery available to the Germans.[101] Curiously, Allied Intelligence failed to appreciate the extent and importance of this type of weapon in the German Army. Even though the 'screamin' meemie' had gained infamy in Italy, it remained largely unappreciated in the first three months of the Normandy campaign. Perhaps this was due to as simple a thing as inaccurate translation; *'Nebelwerfer'* translates literally as 'smoke projector.' Throughout the many translations of German documents used for this research, the term *'nebelwerfer'* was consistently misapplied and/or ill-defined. Perhaps this is due to the orgins of the *Nebelwerfer* troops as chemical smoke troops. Very early in the war, they were equipped with a 105mm mortar specifically designed to fire smoke barrages, switching to rocket launchers near the end of the Polish campaign. The high-explosive rocket became the primary round when the effectiveness of massed fires became evident in the early months of the Russian campaign. The projectors were manned, as in the US Army, by GHQ chemical troops. (It is curious to note a parallel in the US Army's 4.2-inch heavy mortar which was developed as a smoke projector and manned by the Chemical Corps. It was only much later that they began using HE rounds in the 4.2" after observing the German and Russian success with the 120mm mortar in Russia.) In short, it was only gradually that the *Nebelwerfer* brigades were appreciated for what they were by Allied Intelligence. As the campaign in Normandy dragged on, the *Nebelwerfer* units became increasingly less effective as German supply problems increased. They were always, however, in demand. The rather high attack strength of the *Nebelwerfer* battalion is not due to its rate-of-fire or throw weight which were barely equal to the 105mm howitzer when reloading times are calculated. Instead, it represents the 'stonking' effect of the simultaneous delivery of 108 projectiles on a target within 10½ seconds. The effects, both materially and psychologically, were truly earth-



130 PANZER LEHR DIVISION: This division, with the possible exception of the *Gross Deutchland Panzer Division* in Russia, was the strongest division in the German Army. Throughout the campaign in Normandy, it was the 'fire brigade' of the front, stopping-up holes all along the line. Until it was completely annihilated by the *Cobra* carpet-bombing, this was the most active division on the front.

The *130 Panzer Regiment* was a particularly strong organization. Besides being organized into companies of twenty-two AFV's each, the fourth company was equipped with JgPz-V's *(JagdPanther)*, probably the finest tank destroying weapon of the war. Regimental HQ also had a fourteen tank company of Pzkw-VIb's *(KonigTiger)* as well as an exotic company of radio-controlled 'Goliath' demolition mini-tanks *('FKL')* equipped with additional *Tiger* tanks. It was a most impressive formation.

This was one of the few panzer divisions that had all of its panzer grenadier battalions mounted on armored half-track vehicles. Each regiment was equipped with twelve *Flakpanzer* AFV's, six self-propelled heavy howitzers, an additional *pioniere* company and an independent pioniere platoon ALL of which were mounted on full- or half-track carriers. These 'extras' translated into combat staying power.

The support elements were also hefty. The Flak battalion has four extra 88mm guns, like an 'SS' Flak battalion. The reconnaissance battalion was particularly strong, well provided with extra men and vehicles. The *Panzer Jager Abteilung* was also provided with 'extras'. Besides its standard complement of twelve 75mm PAK's, it had a company of fourteen *JagdPanzer-IV*'s and a company of fourteen *JagdTigers*. Theoretically, the division could reorganize into three panzer battalions by utilizing the *Panzer Jager* battalion staff, the two companies of Jagdpanzers from that battalion, and the extra company of *Tigers* from regimental headquarters. There is some evidence that they were indeed fielded in that manner shortly after D-Day. Unexpectedly, the artillery regiment had no self-propelled batteries but was instead completely towed.

The division had amazing balance. It could, and did, take enormous punishment before folding. It demands a distinctive treatment and is so treated in the game.

shattering.

[25] The orders-of-battle published in this game for both the *III Sturm-Flak Korps* and the *Nebelwerfer* regiment and brigades[102] represents the most complete record of their composition and equipment yet published beyond scattered achival material. They were important. They were the 'glue' that kept so many burnt out units together for so very long.

THE GERMAN ARMY IN NORMANDY:

[26] The German Army assembled in Normandy from June through August, 1944 defies typification. It was a unique assemblage of singularly unique units. Compared to the 'cookie cutter' appearance of Allied divisions, it is impossible to represent the German Army by any sort of 'standard' TO&E.[103] One of the joys of studying this period of history through the game is the great variety of nationalities, equipment, and organizations employed by the Germans to keep their war machine going. France, being until this time a backwater of the war, collected the second- and third-line equipment of every army in Europe. And before it was over, most of the equipment had been used in anger by a desperate Germany Army.[104] Each German division was unique. In terms of unit quality, these divisions ran the gamut. Many panzer and panzer grenadier units were better than the average Allied divison while most infantry divisions were inferior. Absolute evaluations are meaningless, however, since a division's performance was greatly affected by the corps units supporting it and the performance of friendly units on each flank. Thus players would do well to evaluate each side's entire SYSTEM (reinforcement, replacement, supply, combat, etc.) when evaluating strengths and weaknesses.

[27] **GERMAN VICTORY?** The invasion of 6 June 1944 was a foregone conclusion. The Allied planners did not gamble on the invasion. They used all of the vast resources available in amounts sufficient to GUARANTEE a certain minimum level of results. Short of an act of God, the Allies were going to get ashore in force somewhere on that day. BUT (and a very big 'but', indeed), no one could guarantee that they would be able to stay ashore once they got there. The Germans could have won the Battle for Normandy . . . IF! If the weather had been as bad on 6-7 June as it was on 19-20 June,[105] if the *12ss Panzer Division* and the *130th Panzer Lehr Division* could have joined with the *21st Panzer Division*, in force, by the second day of the invasion,[106] if the German High Command had snapped-to more quickly, and if they had been able to put together a short, powerful offensive surge to the sea, it is possible that they could have rolled up one or more of the disconnected Allied beachheads and in doing so have fatally threatened the logistical foundation (i.e., beach supply) of the entire invasion. If this whole sequence had transpired, then it is possible, if not probable, that Eisenhower would have been

compelled to order a total withdrawal from France. Better to risk a new start the following year than to engage in an Anzio-style enclave operation which would have generated tens of thousands of casualties at a time when Allied manpower was running thin. But, the reader-player can make his own estimation of German chances after playing the game several times.

[28] **GERMAN MISTAKES:** The German generals planned a 'decisive battle' strategy in which units would be conserved and maneuvered for one big engagement in which the Allied Army would be locally defeated, outmaneuvered, and ultimately thrown into the sea. The Germans had the potential to win a major ground offensive. The fact that they won only several major defensive battles is simply a condemnation of Hitler's inept generalship and the German High Command's lack of control of theater operations. Field Marshal von Rundstedt simply never had enough authority to successfully manage the German assets in France. One could even argue that the resources for victory were there, but they were never concentrated properly.

[29] Consider for one moment the idea that the player is an integral element of the simulation system. His decision-making ability substitutes for the decisions of the historical participants. The German player assumes the role of a RANGE of decision-making historical personalities; from the Seventh Army commander down through the individual divisional commanders. Since the smallest units are generally battalion-sized, player interaction stops there (i.e., the player 'orders' a battalion into an advantageous or disadvantageous position but cannot manipulate the sub-units of that battalion.) Since the major decisions concerning the commitment of certain divisions to the invasion front were made at a command level higher than Army or *OKW* (specifically by Hitler or *OKH),* these decisions are removed from the player's control made into order-of-appearance restrictions on the charts. For that reason, there are no 'leader' counters in the game. The player, by definition and by his activity, is the leader.

[30] **GERMAN DISADVANTAGES:** The Allied player has one important intrinsic advantage over his German opponent. Since he assumes the role of *supreme* commander (SHAEF or Eisenhower), the Allied player is better able to regulate the commitment of Allied resources to the battle. Except for divisional entry limitations, the Allied resource commitment is limited only by the 'pipeline' bottleneck and the ten turn lag between the decision to commit and the arrival at the beach/port landing box. This ten turn delay is a good hard number that represents the amount of time required to embark men or material at an English port, transport it across the Channel, and debark on the far shore.[107] It was not simply a question of passage across the channel. Most of the delay was in the marshalling yards jumble in England. It was a logistics nightmare. Much planning time was devoted to attempting to circumvent England entirely. But, even with the capture of Cherbourg, this problem as not really solved until March, 1945. It was still, however, infinitely better than the supply line that the Germans had to contend with across northern France. The Allied air forces succeeded in dislocating the French rail system. For our purposes, the most immediate effect was the 'stringing out' of the German divisions moving across France. They were committed piecemeal, battalion-by-battalion, instead of arriving on the battlefield in decisive strength. Most panzer divisions were dissipated in this fashion. The *German Strategic Movement Track* portrays the situation very well. Without opposition, German units could move across France fairly rapidly. But, the Allied strategic air forces were always free to create bottlenecks at key points based upon their superb reconnaissance of the German supply system.

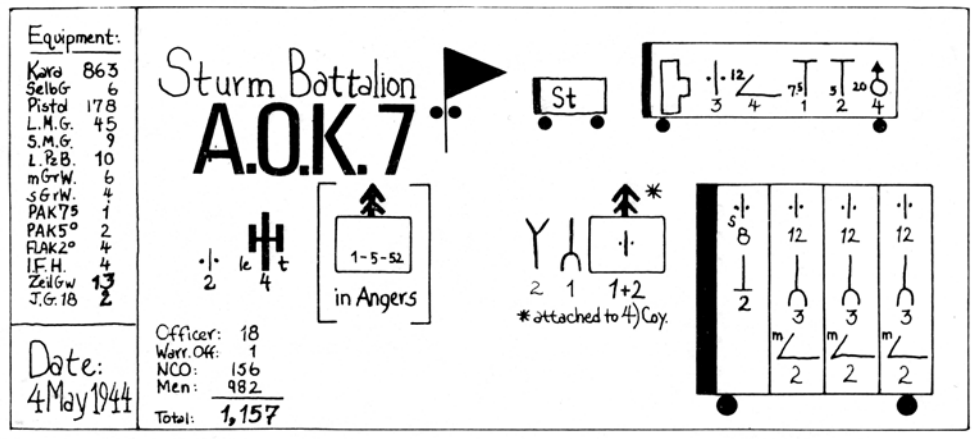
EVALUATING THE ARMIES IN THE GAME:

[31] Only the most astute players will appreciate the 'fourth dimension' of unit evaluation. Simply stated, there is a lot more involved in determining the value of a unit besides its attack and defense strengths. In a game this large, several subtle aspects of unit values will make a large impact on unit strength. First, units have 'depth'. That is, two units of the same strength may have differences in their inverted strengths. Less obvious is the value of an extra inverted step or REM step; staying power is measured in the ability to absorb losses (give up steps) and survive. (Which is more valuable, a 2-2-8 MG company with a stacking value of '1' but no inverted step or a 2-3-4 *Ost* battalion with a stacking value of '3' with a 0-1-4 inverted step? Even though a value of 0-1-4 is almost negligible, it is another step which DOES represent the continued control of a hex.) Depth, then, becomes an important aspect of a unit's effectiveness.

[32] As a corollary, it will be noted that, as units of varying strengths absorb losses, they tend towards a common value (a 5-5-8 and a 5-6-8 both invert to a 2-3-8.) This is in part due to the survivor complex; most casualties traditionally occur among green recruits and replacements. This leaves the veteran cadre who know how to survive. Also, in many cases a small numerical superiority of one unit over another is very often due to the addition of some 'flashy' but highly targetable weaponry (self-propelled infantry support artillery, extra AAA batteries, attached AT guns, etc.) which is quickly lost in combat. Thus after a period of heavy fighting, units tend to resemble one another.

[33] A broad evaluation, then, would have the German infantry battalions as generally weaker than Allied battalions, but with proportionately more staying power: A German 3-3-4 inverts to a 1-2-4 (66% of original defensive strength) while an Allied 5-6-8 inverts to a 2-3-8 (50% of original defensive strength). Toe-to-toe, a fresh Allied division is markedly superior to a fresh German infantry division. Attrite both formations, however, and they tend towards equilibrium. This boost in German 'staying power' is due to the clear superiority of German small unit tactics over Allied methods. They managed to maintain this superiority practically throughout the entire war. Even when poorly equipped and insufficiently supplied, the experienced and blooded German squads, platoons, companies, and battalions were still better able to execute their mission than their relatively inexperienced Allied counterparts, especially the Americans. The green US troops, in particular, had a string of botched offensives on Utah beach when they attempted to take the German coastal artillery positions. This was due in large measure to the failure of small-unit leadership. The US 90th Infantry Division, in particular, had severe problems throughout the campaign. The division commander was eventually sacked and sent home in July.[108]

[34] Does this mean that the German Army was 'better' than the Allied armies? Well, the Allies won and the Germans lost, so it would be very difficult to build a case for that argument. Rather, it is more constructive to say that the Allies built one kind of army, based on their resources, and the Germans another based upon their more diminished resources. In the end, the Allies were able to manipulate the strategic situation to create a campaign that enhanced their strongpoints while diminishing the strengths of



STURM BATTALION A.O.K. 7: This is the noted Seventh Army anti-invasion unit that fought so well against US airborne forces on D-Day and after. It was a singularly unique battalion in the Seventh Army. It was organized like a miniature division: With 1,157 officers and men, it was a large motorized rifle battalion that possessed engineer, FLAK, PAK, and artillery elements. It fought very credibly, finally being destroyed in the fighting for Cherbourg.

The *Sturm Battalion A.O.K. 7* was an extremely well-armed formation. Its heavy weapons company possessed 50mm and 75mm PAK's, a FLAK battery (20mm), and a battery of 120mm heavy mortars. All four of its rifle companies were equipped with *Panzerfaust* anti-tank rockets. The *pioniere* platoon attached to the fourth company possessed flamethrowers. A second platoon of *pionieres* was detached to the city of Angers, near Lorient (and presumably it appears in the game as part of the *ad hoc pioniere* battalion *'ANGER'* which was formed from units at the *pioniere* school located in that city). What really added to the battalion's strength, however, was the addition of the battery of four 100mm Czech howitzers. When combined with the battery of heavy mortars, they gave the battalion an impressive amount of 'dedicated' fire support.

Given complete motorization, the *A.O.K. 7* was an effective 'fire brigade.' Players should find that it performs up to its historical potential in the game.

the Germans.[109]

[35] The German generals would have given their eye-teeth for a mobile, fluid situation wherein their infantry divisions would hold the enemy while their panzer divisions blasted through to wreck the beachhead logistical apparatus and effectively isolate the Allied Army. The Allied 'Goliath' would be felled by a regular thrust to the heart delivered by the armor-plated arm of a Teutonic 'David.' In reality, the Allies were able to paralyze German mobility and turn the Battle for France into a grinding war of attrition that the *Wehrmacht* was not prepared to conduct.

[36] The real challenge in *The Longest Day*, then, goes to the German players. Theirs is truly the more difficult of the two struggles. While they are given very powerful tools with which to win, they will find that they are forever slightly out of step with the flow of the game action. Attempts to create a mobile battle will be countered by the natural tendency of the simulation design to slide into a battle of logistics and attrition.

[37] For an even match, the smarter players should be on the German side. For, as decision makers, only their own brains will save them. They can only win by consistently out-thinking their Allied opponents. A victorious German player will not be the one with dogged tenacity and stamina (that is the Allied role), rather, he will be the one who possesses a mental fierceness to maintain the offensive, the one who will defeat an opponent mentally as well as on the mapboard. Oh, and a touch of mad-dog would not hurt either!

UNIT COUNTER WEAPONS AND EQUIPMENT DIRECTORY:

Counter
Abbreviation: Official designation and type:

U.S. ARTILLERY:

105	105mm Howitzer M2A1 Carriage 2A2.
105p	105mm Howitzer M3 Carriage M3A1.
155	155mm Howitzer M1/M1A1 Carriage M1.
155G	155mm Gun M1917/M1918M1 Carriage M3.
75p	75mm pack Howitzer M1A1 Carriage M8.
4.5"G	4.5-inch Gun M1 Carriage M1A1.
4.2"CM	4.2-inch Chemical Mortar.
3"G	3-inch Gun M7.
57	57mm Gun M1.
76	76mm Gun M1A1.

BRITISH ARTILLERY:

17#	17-pounder Anti-Tank Gun Mk.2 on Carriage 25-pder Mk.1.
25#	Ordnance Q.F. 25-pder Mk.2 on Carriage 25-pder Mk.1.
5.5"	B.L. 5.5-inch Mk.III Gun on Carriage 5.5-inch Mks. I & II.
7.2"	B.L. 7.2-inch Howitzer Mks. I to VI on Carriage Mk. I.
20	20mm Anti-Aircraft/Anti-Tank Polsten Cannon.
6#	6-pounder Anti-Tank Gun.

GERMAN ARTILLERY:

75 FR	7.5cm GebK 237(f): French Canon de 75 M mle 1919 Schneider.
76.2 RU	7.62cm Infantriekanonehaubitze 290(r): Russian 76.2mm infantry gun Model 76-27.
80 CZ	7.65cm FK30(t): Skoda 76.5mm M.30(NPK) (in service as 8cm Kanone vz.30).
100 CZ	10cm leichte Feldhaubitze 14/19(t): Skoda 100mm Mod. 14/19.
105G	10cm Kanone 18.
105GbG	10.5cm Gebirshaubitze 40 L/30.
105G FR	10.5mm Kanone 331(f): Canon de 105 mle 1913 Schneider.
105	10.5cm leichte Feldhaubitze 18.
•105 FR	10.5cm leichte Feldhaubitze 325(f): Canon de 105 court mle 1935 B.
120M	12cm Granatwerfer 42.
122 RU	12.2cm Kanone 390/1 & 2(r); 122mm Field Gun Mods. 1931/37 A-19.
•122 RU	12.2cm schwere Feldhaubitze 396(r): 122mm Field Howitzer Mod 1938.
149 CZ	15cm schwere Feldhaubitze 37(t): Skoda 149mm Mod. 37-K4.
150NW	15cm Nebelwerfer 41.
150	15cm schwere Feldhaubitze 18(M).
150 FR	15cm sFH 461(d): Schneider 149mm Obusier mle 1929.
152 FR	15.2cm KanoneHaubitze 433(r) & 15.2cm K438(r): 152mm Field Gun Models 1910/30 and Model 1937 (ML-20).
155• RU	15.5cm sFH 414(t): Canon de 155 C mle 1917 Schneider.
155 FR	15.5cm sFH 415(f): Canon de 155 C mle 15 St. Chamond.
170	17cm Kanone 18 in Morserlafette.
210	21cm Kanone 38.
210GM	21cm Morser 18.
210 NW	21cm Nebelwerfer 42.
280 E	28cm kurz Bruno Kanone in Eisenbahnlafette.

GERMAN COASTAL ARTILLERY:

94 BR	9.4cm FlakVickers M.39(e): Ordnance Q.F. 3.7-inch Mks. I & II.
100 CZ	10cm leichte FeldHaubitze 14/19(t): Skoda 100mm Model 14/19.
105 FR	10.5cm Kanone 331(f): Canon de 105 mle 1913 Schneider.
105	10.5cm SchiffesKanone C/32.
120 BE	12cm Kanone 370(b): Canon de 120 mle 1931.
150	15cm SchiffesKanone C/28.
155 + FR	15.5cm schwere FeldHaubitze 415(f): Canon de 155 mle 15 St. Chamond.
155 FR	15.5cm Kanone 420(f): Canon de 155 mle 1916 St. Chamond.
170	17cm Kanone 18.
170n	17cm SchiffesKanone L/40 C/01.
203	20cm Kanone in Eisenbahnlafette.
210 CZ	21cm Kanone 39; Skoda 21cm K52.
240	24cm SchiffesKanone C/98 L/40.

U.S. ARMORED FIGHTING VEHICLES:

M4	Medium Tank, M4 (Sherman): 75mm or 76mm gun.
M7	Howitzer Motor Carriage M7: 105mm howitzer.
M10	Gun Motor Carriage, M10: 3-inch gun.
M12	Gun Motor Carriage, M12: 155mm gun.

BRITISH ARMORED FIGHTING VEHICLES:

CHC	Infantry Tank Mk IV *Churchill* (A22): 75mm gun.
AVRE	*Churchill* AVRE (Armored Vehicle, Royal Engineers): 290mm Petard mortar.
CROC	*Churchill* Mk. VII 'Crocodile': 75mm gun and flamethrower.
RMSR	Cruiser Tank Mk VIII *Centaur* IV (A27L): 95mm howitzer.
SHM	*Sherman I*, British designation for U.S. M4 tanks: 75mm or 17-pder gun (in 'Firefly' models).
DD	*Sherman* (or U.S. M4) tanks fitted with Duplex Drive (DD) equipment for amphibious landings.
CRAB	*Sherman* tanks fitted with mine-clearing flails.
SEX	*Sexton* 25-pder SP, Tracked.

GERMAN MAIN BATTLE TANKS:

IV	Sdkfz. 161 Ausf G: Pzkfw IV ausf 7.5cm Kwk L/48.
V	Sdkfz. 171: *Panther* Pzkfw V Pak 75 L/70.
VI	Sdkfz. 181 & 182: *Tiger* I &II ausf 8.8cm Kwk L/56 & L/71.
R35	Pzkfw 35R-731(f): French Renault R-35.
H39	Pzkfw 39H-735(f): French Hotchkiss H-39 w/37mm gun.
CHB	Pzkfw B1 bis 740(f) & B1 bis Flamm(f): standard and converted French Char B1 bis with 47mm and 75mm guns.

GERMAN ASSAULT GUNS AND SELF-PROPELLED ARTILLERY:

8.14M	Mittler Schutzenpanzerwagen S307(f) mit Rackenwerfer: multiple-mounted Mortier Brandt de 81mm Modele 27/31 mounted on an S307 half-track.
H39	7.5cm Pak 40 L/46 ausf GW39(f): German AT gun mounted into French H39 tank hull.
R35	4.7cm Pak(t) ausf 35R(f): Czech 47mm anti-tank gun mounted on French R-35 tank.
150 NW	15cm Panzerwerfer 42.
105	Sdkfz. 124 10.5cm le FeldHaubitze 18/2 Sf *Wespe*.
M2	Sdkfz. 131 7.5cm Pak 40/2 L/46 *Marder II*.
SG3	Sdkfz. 142 SturmGescheutz 40 Ausf G: 7.5cm StuG40 L/43.
IV	Sdkfz. 162 Jagdpanzer IV Ausf F: 7.5cm Pak 39 L/48.
150	Sdkfz. 165 15cm sFH 18/1 *Hummel*.
V	Sdkfz. 173 Jagdpanther V fur 8.8cm Pak 43/3 L/71.
VI	Sdkfz. 186 JagdTiger VI fur 12.8cm Pak 44 L/55.
IV 20	Flakpanzer IV 2cm Flakvierling (Mobelwagen).
IV 37	Flakpanzer IV 3.7cm Flak 43 (Mobelwagen).

GERMAN FLAK AND ANTI-TANK GUNS:

20	2cm Flugabwehrkanone (Flak) 38.
37	3.7cm Flak 26 und 37.
75	7.5cm Panzerabwehrkanone (Pak) 40. or 7.5cm Pak97/38: modified French Canon de 75 mle 1897.
76.2 RU	7.62cm Pak 36(r): Russian 76.2mm field gun model 1936. or 7.62cm Pak 39(r): modified Russian field gun model 1939.
88	8.8cm Pak 43 (in divisional artillery battalions: 8.8cm K43.) or 8.8cm Pak 43/41.
88	8.8cm Flak 18, 36, und 37. or 8.8cm Flak 41.

GAME DESIGN ANNOTATION

The following are explanatory/reference notes to the entire game package. By doing this, it is hoped that this designer's design rationale will be made more obvious and will allow reviewers easier access to the data base and sources consulted. Please note, however, that these notes and references (in particular) are not as rigid or as scholarly as I would have liked them to have been. The decision to annotate this design was made near the end of the design and development process thus inhibiting the completeness of the entries. It is modestly hoped that the inclusion of design annotation will encourage other designers to do likewise and thereby improve the quality of the academic research being done for future historical simulation games.

1. Two kilometers is a good compromise between the minimal frontage of a battalion and the maximum frontage that a company could expect to hold. A twelve-hour turn scale would have been preferable for certain game applications (day/night rules, strategic movement, resupply, etc.) but would have made a good campaign game impossible.

2. A regimental-sized game was discarded out of hand as being too artifical. A division's maneuver elements are battalions, not regiments. This is a divisional game.

3. Apologies for the size, but oodles of cards one-third the size would not have been any easier to manipulate. This IS a monster game!

4. The decision to use a new symbology system was agonized over. In the end, this new system was used because it is so superior to the old one for hard-core players and serious students of history. Still, it is new, different, and involved. It was only used, in any event, after playtesters reported that the conversion to the new system was rapid, painless, and ultimately rewarding in its wealth of historical detail.

5. Another reason for using this symbology system is its display of non-motorized/motorized/tracked mobility attributes and the armor/artillery/infantry combat functions using the counter symbology.

6. The 'conventional' concept of zones of control has no place in this system. Here, a unit controls the area it occupies or dominates. A prepared position, with clear fields-of-fire [fortifications], or an observation advantage [hills] allow a unit to dominate more than just the terrain it occupies, thus it creates its own zone of control.

7. This definition, of course, ignores the corps' real function which was to control units engaged in combat or movement operations. For simplicity, we ignore the fact that corps control divisions tactically and only address their other function of controlling independent formations when they are not attached to divisions, for the most this included only artillery units. (See references #15 and #190.)

8. There is little reason to include Army and Army Group HQ units since, by definition, the players themselves function in these roles.

9. The eight hex rule is arbitrary, but it reflects a practical limit on the distance between a divisional dump and the battalion supply point. Realistically, this would vary for each type of division and even for individual divisions depending upon the capacity of their supply trains and the type of vehicles used to move the supplies. (See references #22, #26, and #29.)

10. Non-artillery units were always subordinated to divisions even if they were officially designated as corps assets. (See references #179 and #186.) This rule prevents corps HQ's from acting like mini-divisions.

11. Both of these limitations are artificial by themselves but they become realistic in that they make the system work. When averaged over ALL of the divisions in the army, the numbers are very close.

12. Of course, this is not literally true but to consume DEFENSIVE supply would lead to situations wherein offensives are launched for the sole purpose of burning up the other side's supply without inflicting casualties. That is an unacceptable artifact in this game system.

13. Please note that this means that the *zbV 752 Regiment* can supply three independent artillery or non-artillery units even though it has no permanent subordinate units of its own. (See references #149, #194, and #206.)

14. Luftwaffe Flak units maintained their own stockpiles and supply systems for ammunition and equipment. They suffered very few shortages of ammo and were just about the only artillery units to receive replacement weapons. (See references #41, #62, #174, and #181.) The independent *Heeres Flak* units were able to draw upon the huge Luftwaffe and Army dumps located in France as a result of the strategic bombing campaign.(See references #147 and #189.)

15. The Germans were particularly adept at using burned-out remnants as universal 'fire brigade' reserves. (See reference #188.)

16. Note that this is a different situation from the 'reinforced battalion' discussed in the Designer's Notes section. The important elements are the combinations of tanks with infantry which is an external organization in this game system.

17. There is no representation of the Luftwaffe in the game. Even though they executed numerous sorties during the early invasion period (See references #60 and #122), they were totally ineffective and had no noticeable effect on the invasion (See reference #11, Appendix VII.) Huge amounts of Allied anti-aircraft over the beach areas (See reference #12, Anti-Aircraft Annex), reduced the German efforts to high-level attacks or low-level night attacks which were of little help. Ignoring the Luftwaffe allowed for the development of a much cleaner design system for air. It was an acceptable design trade-off.

18. This is not really *close* air support which was a tactic not perfected until early 1945. Rather, this was a 'target of opportunity' bombing and strafing in front of Allied units requesting air support before the attack. That explains the rather puny attack strengths of the Allied air forces. Reference #8 describes this succinctly. The primary mission of the IX Tactical Air Force was to "isolate the battlefield by attacking enemy lines of communication."

19. Contrary to popular belief, the fighter bombers were so successful at interdicting German reinforcements and supplies because they were capable of interrupting movement and disorganizing the road marches of units. They really did not destroy a great deal of equipment and men (Reference #129 is particularly enlightening in this respect.) That is one reason why fighter bombers do not have attack strengths like the tactical bombers.

20. Besides reducing the number of counters on the mapboard, this is also a useful device for confusing the German player as to the disposition of Allied interdiction forces.

21. The Allied high command could have used carpet-bombing with regularity except for the strenuous objections of the Eighth Air Force to any interruption of the strategic bombing campaign. They were used before 'Cobra' in the British attacks on Caen. (See reference #70.) It is difficult to place an absolute limit on their usage because they could be arranged quickly in any sort of 'last-ditch' situation. Politically, though, they were extremely costly for the ground commanders to ask for, an aspect difficult to reflect in the game except in certain multi-player situations. The after-effects of the carpet bombing (the movement penalty) and the disruption of the strategic interdiction reflect the real-life limitations quite nicely. (See reference #8 for a thorough discussion.)

22. This ranging method works quite well because Allied ships were severely limited in their bombardment maneuverings to previously mineswept channels near beaches and ports. (See reference #73 for a good account of the great limitations the *Neptune* forces worked under.)

23. This is very much 'straight' history. (See references #5, #22, #30, #49, #86, #118, #147, #149, #163, #178, #189, #196, #220, #223, #224, and #225.)

24. Company-sized drops would be more accurate but a whole lot more tedious than the battalion-drop method. Besides, in the overall effects of the first turn machinations, minor variations in air drop results are insignificant. Admittedly, a rather ruthless design trade-off. With all due respects to references #72 and #77, the minor "whodunits' of this mob of baggy-pants and that one are really beyond the scope of this game. Remember, this is a DIVISIONAL game.

25. Based upon the historical drift pattern. (See references #13 and #16.)

26. Again, straight history. This did require a bit of adjustment for the placement of much of the British specialized support armor which was broken down into companies, squadrons, and even troops and then spread over several beaches. Also, players cannot 'roll their own' invasion set-up simply because there were millions of details in the final invasion plan reflecting thousands of logistical and tactical trade-offs which cannot be duplicated by the players in the game.

27. Due to an error on the part of some G.I. clerk-typist, this was always incorrectly referred to as "Point du Hoe" in Allied publications. Compare reference #18 with #168.

28. Beachhead markers represent, in effect, the very complex system of beach engineering and control equipment and the personnel required to run them. On each beach, this system began operating almost as soon as the first assault wave hit. If the Allies would have been forced to pull out of a beach, they would have lost most of the beach control system there and would have been forced to abandon that area for logistical purposes. (See references #9, #12, #13, #14, #34, #37, #74, and #94.)

29. Reference #91 vividly describes how ineffective these units were after the first day. Lacking any logistical support elements whatsoever, attrition rendered them ineffective after the first several hours of combat. Scattered elements attached themselves to regular artillery battalions and remained on the beachhead for several weeks before being mercifully withdrawn and disbanded.

30. The mapboard set-up represents a most complete record of the German artillery system in Normandy on the eve of the invasion. The full extent of the German preparations in regards to fortifications, naval artillery, army coastal artillery, divisional artillery, and corps artillery is discussed in references #30, #86, #94, #147, #149, #153, #159, #163, #178, #189, #194, #195, #196, #207, #220, #223, #224, and #225.

31. This simply recognizes the fact that a coastal gun could fire a lot of rounds at a target off-shore in the amount of time it took to unload its passengers or cargo. It could also fire at a great many targets in one day.

32. Reference #11 and especially #31.

33. Logistical support for all of the 'Funnies' was sporadic and insufficient enough to guarantee replacements in the face of heavy casualties.

34. Their primary task was, however, breaching minefields on the beaches during D-Day. They retained their mine-clearing capability throughout the Normandy campaign.

35. See references #50, #68, and #87. For more reading on the Mortain Offensive, see reference #8.

36. For more reading on the Falaise Pocket, see references #8 and #59.

37. For more reading on the Cobra Offensive, see reference #8.

38. For more on the Fall of Cherbourg, see references #13 and #49.

39. Reference #189.

40. For an excellent background on the D-Day invasion, read references #11 and #13.

41. June through July, 1944 was one of the worst periods for inclement weather since 1900. (See reference #8.) Allied aircraft were grounded for 50% of the time in June and most of July. See reference #43 for a thorough history of the weather in this time period.

42. See reference #43 for a day-by-day account of the weather conditions.

43. Although this is a simplification, it is not far from the truth. The Germans simply had no replacements for artillery losses except for some Luftwaffe Flak guns. The Allies could handle only operational maintainance losses, not large scale weapon casualties. For the Allies, see references #12, #15, and #35. For the Germans, see references #24, #32, #36, #41, and #94.

44. Disregarding the question of competence and effectiveness, it is a bit surprising that there were so many redundant command staffs floating around waiting for a slot in all three armies. A division could be temporarily neutralized by the elimination of the divisional commander and his staff, but such a loss would hardly destroy it.

45. Most of this ten-turn delay represents the time required for staging and embarking units in England which could continue regardless of weather conditions. See references #9 and #15.

46. The *German Strategic Movement Track* is a simplified schematic of the major rail routes through France. See reference #212.

47. This represents allotments from the huge supply dumps located throughout Brittany. See reference #138.

48. Proper communications capability allowed for this. It became rather common practice. (See reference #80.)

49. This is because the naval gunfire spotters of one navy could not coordinate with the ships of the other navy and there was no central fire direction center. (See reference #73.)

50. Again, communications difficulties prevented this type of cooperation.

51. See reference #31.

52. For a fine explanation of the technical complexities involved, see references #33, #34, #37, and #44.

53. Reference #33.

54. Damaged Mulberries were surprisingly effective because the most important element of the entire system was the breakwater formed by the floating caissons and sunken ships. This allowed for a quiet anchorage where small craft could off-load the big ships. Allied planners had simply grossly under-estimated the amount of tonnage that could be moved across the beaches without the use of the hydraulic pierheads. (See reference #34.)

55. Based upon data found in references #9, #12, and #218.

56. Interestingly, the Germans began preparing for the demolition of the harbor installations almost immediately. It was one of the most thorough demolition jobs of the war. (See reference #189.) Reference #49 has a very readable account.

57. Mapboard rail lines were developed from references #218 and #219.

58. These four companies represented all of the rail repair assets availabie in northern France. (See references #194 and #195.)

59. Historically, it took Allied tactical air forces a bit less than two weeks to bomb the rail net in Normandy into a state of total collapse. Reference #13 has a good account.

60. This may seem like an arbitrary number, but it in fact represents corps-sized 'breakout.' Under this definition, the historical campaign would have ended when Patton's Third Army broke through into Brittany.

61. These victory conditions are designed to truncate a botched Allied landing wherein the Allies are too strong to be thrown back into the sea and too weak to break out of the beachhead. This avoids an 87 turn stalemate. The Allies had little trouble, historically, in meeting these intermediate victory conditions.

62. Reference #8.

63. *Ibid.*—Eisenhower was not about to lose an airborne division by throwing it far into the German rear. Indications are that they considered this type of operation to be a tactical envelopment, not a strategic one.

64. Reference #54.

65. Reference #56.

66. Reference #88.

67. References #194 and #206.

68. Reference #8.

69. Carell maintains that the Germans seriously considered reinforcing besieged Cherbourg from the sea with troops from Brittany or the Channel Islands. (See reference #49.)

70. References #167 and #179.

71. References #11 and #15.

72. Ruge presents a fascinating, if somewhat self-serving, account of the impact of this on the two staffs serving the two fieldmarshals. Reference #5.

73. Reference #15. For several hours, in fact, Rommel did have total authority as he had repeatedly asked for. It was rescinded soon after, however.

74. From an unpublished intelligence estimate. See reference #92.

75. Reference #5.

76. References #195, #196, and #212.

77. The corps HQ represents abstractly the dozens of bridging units that the Allies maintained as GHQ troops.

78. For an opposing opinion, see reference #1.

79. Reference #13.

80. See, for example, various entries in reference #25.

81. Typical unit frontages for infantry units in WWII are:

SIZE	ATT	DEF
Batt	1 km	1-2 km
Reg	2 km	2-4 km
Div	5 km	6-10 km

Depth of formation could be up to 6 to 8 kms.

82. The primary effect of bocage was to restrict the ability to coordinate attacks by several different units. (See references #13.)

83. Reference #211.

84. Reference #219 was used in conjunction with reference #211.

85. Reference #218 was used for the mapboard rail net. Reference #212 was used as the basis for the *German Strategic Movement Track*.

86. Rail traffic declined 60% in France between 3/1/44 and 6/6/44. It declined 75% in *Region Nord* (Paris) and 80% in Normandy *(Region Quest)* after 6/6/44. In June, 1944, 486 rail cuts were reported. By D+1, twenty-six trunk lines were unuseable. (See reference #13.)

87. Strangely enough, resistance-led sabatoge efforts contributed only one incidence of rail cuts in that part of France represented by the mapboard in all of May, 1944. Sabotage was not a major factor in the total collapse of the rail system. (See reference #11.)

88. References #114, #116, and #201. Reference #29 has an excellent explanation of the system for the novice reader.

89. This was manifested in the heavy reliance on the German symbology system on the *Unit Function Chart* which sets up six definitions in a 3×3 matrix that characterized all of the units thus avoiding lengthy and repetitious listings of applicable units.

90. Reference #73.

91. Reference #129.

92. References #39, #53, and #54.

93. Reference #38.

94. Reference #35.

95. Reference #36.

96. Referene #12.

97. See especially reference #129.

98. Reference #174 is an amazing collection of data on this unit and is the only source (i.e., the commanding general) for the location of the first regiment.

99. Reference #69.

100. Reference #32. Is anyone still following me to this point?

101. Reference #132.

102. Reference #179 contains a detailed order-of-battle diagram for the *8 Nebelwerfer Brigade*. All three brigades had the same basic TO&E.

103. References #194 and #195 were extremely important sources for otherwise unobtainable TO&E data.

104. This is vividly illustrated in a quick scan of the *Unit Counter Weapons and Equipment Directory* which lists only the different types of weapons that were used by units in Normandy. A list including other parts of France would be twice as long.

105. This was the date of the big storm that destroyed the American Mulberry.

106. See *Campaign Game Variations*, sections 'E' and 'F'. The movement of these two divisions was most critical to the outcome of the entire campaign.

107. References #9 and #15.

108. Nor was the 90th Division the only 'eightball' division to fight in Europe. For obvious reasons, units that experienced gross failures in training and fighting were not well-publicized. Records show, however, that several hundred field-grade officers in the U.S. First Army were cashiered and sent home with prejudice between June and August, 1944. (See reference #12.) Habitually reading accounts of the same battle from both sides allows for a better appreciation of whether a unit failed to accomplish its mission because of incompetence or because of enemy resistance.

109. Wilmot has compiled an excellent overview of the strategic campaign. (See reference #85.)

XVI. ANNOTATED DESIGN BIBLIOGRAPHY

Including an annotated bibliography in a simulation game rules booklet may seem to be a rather elaborate incidental extravagance. Its purpose is two-fold, however. First, it allows easy access, review, and critique of the RESEARCH methods as well as the design methods. Hopefully, this bibliography will serve to remind other designers of their responsibility to document their work. Secondly there has been a school of thought in game design which supports the notion that games are excellent vehicles for transmitting information on the historical event encompassed by the game. This designer does not agree with that assumption; many times raw historical information is supplied only at the cost of bogging down an otherwise efficient game system. Books will still tell more in a more efficient fashion. Still, *The Longest Day* attempts to present the player with a resource 'package' which he can use to study and investigate the historical period at his own pace. The game can guide interested players towards the most profitable avenues of further study. This bibliography is the first step in that path. Of course, less serious students of the Normandy Campaign may gleefully ignore this entire section!

The research materials used for *The Longest Day* were largely drawn from a few specialized resource centers easily accessible by the public. The *National Archives,* Washington, D.C., has two especially usefully divisions, the *Captured German Documents Section* and the *Cartographic Archives Division*. The CGDS contains thousands of rolls of microfilm of German military documents and was the source of much of the detailed order-of-battle data for the Seventh and Fifteenth German Armies. The CAD provided many of the maps used by the Allies for their beachhead selection analysis. The *Center For Military History,* Washington, D.C., has an impressive collection of unpublished monographs and manuscripts on a wide range of subjects related to Normandy. It also houses the notes and working documents used to prepare *Cross-Channel Attack* (reference #13) and *Breakout and Pursuit* (reference #8). A different emphasis is found at the *U.S. Army Military History Institute* in Carlisle, Pa. The Institute is the depository for a huge collection of *Foreign Military Studies* monographs and related reports and a remarkable collection of unit histories for the U.S., British, and German Armies. The *Library of Congress,* Washington, D.C., is still the best source of secondary and technical works on the subject. Regrettably, the library is not as useful as it once was due to the simple loss of many crucial volumes from the stacks. Its *Geography and Map Division,* Alexandria, Va., however, has excellent

service facilities. Its 3½ million map collection yielded most of the cartographic references used herein. Lastly, the *Bundesarchiv-Miltararchiv,* Frieburg, West Germany, is the only source now available for *readable* copies of German operational maps. Those maps available on microfilm in the U.S.A. are by and large unreproduceable with any detail.

This bibliography excludes those volumes consulted which did not yield useful information. Unit histories, in many cases, contained only anecdotal narration of only the most superficial kind. Those that are included herein were several cuts above the average unit history. There is also a large bulk of as yet unpublished material which was used to solve pin-point problems by the score. Their general inaccessibility precluded their inclusion. Finally, there are many 'war books' passing as military history whose superficiality do not merit serious consideration.

Those sources affecting the eventual game design and presentation are presented below:

AUTOBIOGRAPHIES, MEMOIRS

1. Bradley, Gen. Omar N., *A Solider's Story,* New York: Henry Holt, 1951. Excellent autobiography of a key Allied commander, although it does contain some pretty narrow interpretations regarding various controversial aspects of the campaign.
2. Bryant, Arthur, *The Alanbrooke War Diaries: Triumph in the West,* New York: Doubleday, 1959. Diaries of Field Marshal Lord Alanbrooke. Diplomatic and political events behind the military decisions. Slowly, ever slowly paced.
3. Churchill, Winston S., *The Second World War* (Vols I-VI), Boston: Houghton Mifflin, 1948-53. Churchill's recollection of WWII.
4. Eisenhower, Dwight, *Crusade in Europe,* New York: Doubleday, 1948. Eisenhower's recollections of the European campaign.
5. Ruge, Friedrich, *Rommel in Normandy,* San Rafael: Presidio Press, 1979. A fascinating accompaniment for anyone doing serious reading on Normandy. These reminiscences by Rommel's naval advisor fill many small gaps in the standard Rommel-Rundstedt controversy.
6. Speer, Albert, *Inside the Third Reich,* Trans. Richard and Clara Winston, New York: MacMillan, 1970. A fascinating look at the production war. While self-serving, it nevertheless represents a rare discussion of the economics of war.
7. Stevenson, William, *A Man Called Intrepid,* New York, Harcourt, Brace, Jovanovich, 1976. The rather convoluted and overblown story of William Stephenson and the far-reaching intelligence network he formed.

OFFICIAL HISTORIES AND UNIT HISTORIES

8. Blumenson, Martin, *The U.S. Army in WWII, The European Theatre of Operations, Breakout and Pursuit,* Washington: OCMH, 1961. A good companion volume to *Cross Channel Attack,* although less detailed. Recommended basic reading.
9. Bykofsky, Joseph and Larson, Harold, *U.S. Army in WWII, The Technical Services: The Transportation Corps: Operations Overseas,* Washington: OCMH, 1957. Good administrative history on the gut issues and problems of supporting an army on foreign shores. Most comprehensive account readily available.
10. Dawson, W. Forest, *Saga of the All-American* (82nd Airborne) Reprint Nashville: Battery Book Shop. Original: Chicago: 82nd Airborne Division Association, 1946. Reprint of 82 AB divisional history. Useful secondary material, although not much 'hard' data.
11. Ellis, L.F., etal. *Victory in the West, Vol. 1 (Official History of the Second World War, Military Series):* 1962. The British official account of the campaign. Concise, but well-written. Recommended basic reading.
12. First United States Army, *Reports on Operations 20 October 1943-1 August 1944,* (7 vols.) Paris: First U.S. Army HQ, 1945. Invaluable source book for quantitative and qualitative information of every description. Annex especially valuable for tabular data. Unique source for "head count" on buildup of armor and artillery units.
13. Harrison, Gordon A., *The U.S. Army in WWII, European Theater of Operations, Cross Channel Attack,* Washington: OCHM, 1951. The standard account of the invasion. Excellent blend of narration and detail. Very good maps. Recommended basic reading.
14. Joslen, H.F., Lt. Col. (Ret.), *Orders of Battle,* London: Her Majesty's Stationery Office, 1960. The definitive work on British Army orders-of-battle for World War II. Invaluable.
15. Ruppenthal, Roland G., *The U.S. Army in WWII: The European Theater of Operations: Logistical Support of the Armies,* U.S.G.P.O., 1953, 1959. Only official Allied history of logistical problems in the Campaign for France. Dry reading.
16. _____, *Utah to Cherbourg,* Washington: OCMH, 1946. Detailed but flawed history of the Utah beach operations & reduction of Cherbourg. Many annoying factual errors. Mediocre military history. Suffers from lack of historical distance.
17. Stacey, Charles P., *The Victory Campaign, The Operations in Northwest Europe, 1944-45 (Official History of the Canadian Army in the Second World War)* (Vol. III). Ottawa: Queen's Printers, 1960. Well constructed history detailing important facets of the 3rd Canadian Division on D-Day, not covered in British official histories.
18. Taylor, Charles H., *Omaha Beachhead,* Washington: OCMH, 1946. Flawed history of Omaha landings. Many factual errors.
19. United States Army, V Corps, *V Corps Operations in the ETO, 6 January 1942-9 May 1945,* n.p. (copyright, 1945). Good operational history of this crucial corps. Suffers from being a 'year book' type publication (as are many unit histories), but good unit inventories.
20. _____, *The Army Almanac,* Washington: War Office, U.S.G.P.O., 1950. A handy source for battalion-level U.S. Army order-of-battle. Good all-purpose reference.
21. _____, *The German Order-of-battle, 1944,* New York: Hippocrene Books, Inc., 1975. A reprint of a 1943 British order-of-battle publication. Incomplete. Suffers from being a wartime analysis. Many better German OoB's available in archive sources.
22. _____, *Handbook on German Military Forces,* War Dept., U.S.G.P.O., March 1945. A valuable book, but limited due to its publication during hostilities. It is, therefore, rife with errors of omission and commission. A good secondary source.

TECHNICAL HISTORIES

23. Boussel, Patrice, *D-Day Beaches Revisited,* New York: Doubleday, 1966. Unique look at the battlefield through maps and diagrams. A battlefield tour guide book of some importance. Invaluable.
24. Chamberlain, Peter and Gander, Terry, *88: Flak and Pak,* Windsor: AFV Weapons Special, Profile Publications, 1969. More than you ever wanted to know about 88mm guns. An excellent history of the weapon and its development.
25. Chamberlain, Peter and Ellis, Chris, *British and American Tanks of World War II: The Complete Illustrated History of British, American and Commonwealth Tanks, 1939-1945.* New York: Arco Publishing Co., 1969. (2nd edition, 1975) A good encyclopedic work. Excellent reference. Recommended.
26. _____, (eds.) *Handbook on the British Army, 1943,* New York: Hippocrene Books, Inc., revised edition c. 1945. A reprint—extensively edited—of TM30-410, the US Army's Handbook on the British Army. Useful reference although incomplete—especially for Normandy campaign.
27. Crow, Duncan, *U.S. Armored Cavalry: A Short History 1917-1967.* Windsor: Profile Publications, 1971. An excellent source of hard-to-find information on an ignored subject.
28. Crow, Duncan and Icks, Robert, *Encyclopedia of Tanks,* Secaucus: Chartwell Books, Inc., 1975. An easy-to-use reference which handles German modifications of captured equipment very well.
29. Davies, W.J.K., *German Army Handbook,* London: Ian Allen, Ltd., 1973. A treasure trove of interesting insights and details into the workings of the German Army. Worthwhile.
30. Desquesnes, Remy, *Le Mur de l'Atlantique en Normandie,* Bayeux: Editions Heimdal, 1976. A fantastic French language publication outlining the location, composition, and armament of German coastal fortifications on the Atlantic Wall in Normandy. Many excellent maps and tables. While it ignores Wehrmacht divisional and army-level preparations, it is excellent in presenting Naval and Army Coastal artillery preparations.
31. Futter, Geoffrey W., *The Funnies,* Hemel Hempstead: Model and Allied Publications, 1974. An excellent account of the British 79th Armored Division; its operations, equipment, technique. Excellent line drawings and charts.
32. Gander, T.J., *Field Rocket Equipment of the German Army,* 1939-1945, London: Almark Publications, 1972. A dandy little book on a difficult research topic. While incomplete, it represents just about all the information on this type of equipment available. Excellent.
33. Harrison, Michael, *Mulberry,* London: W.H. Allen, 1965. The technological struggle behind the building of the Mulberries. Good discussion of logistical problems.
34. Hartcup, Guy, *Code Name: Mulberry,* London: David & Charles, 1977. An excellent technical description of the planning, building and operation of the Normandy artificial harbors. Superb illustrations, plans and diagrams. Appendix includes chart of wind and sea conditions day-by-day.
35. Hogg, Ian, *British & American Artillery of WWII,* New York: Hippocrene Books, Inc., 1978. An exhaustive look at Allied artillery. Handful of minor errors, but overall very informative.
36. _____, *German Artillery of World War Two,* New York: Hippocrene Books, 1975. A definitive compilation of all types of artillery used by the Germans in WWII. Good exposition regarding basic trends in artillery development. Good treatment of captured types used operationally.
37. Ladd, J.D., *Assault from the Sea,* New York: Hippocrene Books, Inc., 1976. A detailed examination of the equipment used in amphibious landings in WWII, with special emphasis on landing craft and support ships. Good diagrams and charts.
38. Ladd, James, *Commandos and Rangers of WWII,* London: Book Club Association, 1978. A superb compendium of all Allied 'special' operations. Very strong on equipment, organization, and operational histories. Recommended.
39. Mrazek, James E., *Fighting Gliders of WWII,* New York: St. Martin's Press, 1977. An incredible book on a rather obscure subject. Exhaustive, complete, informative. Good nuts-and-bolts on British and American technical limitations and innovations. A real 'wargamer's' type of hard reference book.
40. Mueller-Hillebrand, Burkhart, *Das Heer 1933-1945,* (3 vols.) Darmstadt and Frankfurt am Main: E.S. Mittler, 1954-1969. Standard German-language work on German Army. Invaluable. Hard to find.
41. Price, Alfred, *Luftwaffe Handbook, 1939-1945,* New York: Charles Scribner & Sons, 1977. There is a lot of good information packed into this slim volume. It section on FLAK is especially useful in application to the Normandy Campaign. Very well executed.
42. Senger und Etterlin, Ferdinand, Maria, von, *German Tanks of WWII: The complete illustrated history of German armoured fighting vehicles, 1926-1945,* Chamberlain, Peter and Ellis, Chris (eds.); Harrisburg: Stackpole Books, 1969. A superb volume. Complete, thorough, accurate. Highly recommended.

43. Stagg, James Martin, *Forecast for Overlord, June 6, 1944,* The history of the "weather forecasting battle" for Overlord. Unusual subject matter—not for the faint of heart. Unique.

44. Stanford, Alfred, *Force Mulberry,* New York: William Morrow & Co., 1951. The planning and installation of the artificial harbors off Omaha Beach. Fair.

45. Tessin, Georg, *Verbande und Truppen der Deutschen Wehrmacht und Waffen-SS im Zweiten Weltkrieg, 1939-45,* Bad Hounef am Rhein: Verlag Proff & Co. KG. The standard work on German order-of-battle. Superb detail, complete information. A joy.

SECONDARY SOURCES

46. Anon., *Debarques et temoins recontont,* Arromanches: Publications d' Arromanches, 1973. A superb French-language travelogue. This slim volume has several valuable maps and other informative illustrations used in determining map board terrain.

47. Blumenson, Martin, *The Duel for France, 1944,* Boston: Houghton Mifflin Co., 1963. A narrative description of the U.S. operation in Normandy based upon the author's work for *Breakout and Pursuit.*

48. Bohmler, Rudolph, Fallschirmjager, Dorheim: Podzun-Verlag, 1971. A German language account of German parachute units. Fair secondary source.

49. Carell, Paul, *Invasion, They're Coming!* Trans. E. Osers, New York: E.P. Dutton Co., 1962. A highly readable account of the German side. Unusual glimpses of behind-the-scenes activities. Marred by dozens of minor errors of omission and commission—some by Carell, and some—obviously—by his translator.

50. Cave Brown, Anthony, *Bodyguard of Lies,* New York: Harper & Row, 1975. A fascinating analysis of the deception campaign waged by the Allies against Germany. Interesting look at how that affected *Overlord.* Excellent.

51. _____, (ed.) *The Secret War Report of the OSS,* New York: Berkley Medallion Books, 1976. Extensive record of pre-invasion covert operations into France and the influence of the French resistance. Semi-official reports, so it's pretty dry reading.

52. Collins, Larry and Lapiere, Dominique, *Is Paris Burning?* New York: Simon & Shuster, Inc., 1965. The tense story of the events surrounding the city during the Normandy campaign. Good details on occupation life.

53. Crookenden, Napier, *Dropzone Normandy,* New York: Charles Scribner & Sons, 1976. A credible account of British airborne operations. A little confusing in order-of-battle detail.

54. Devlin, Gerard M., *Paratrooper!* New York: St. Martin's Press, 1979. A comprehensive, exhaustive volume which presents a concise account of the airborne operations and considerations of the Normandy Campaign. Flawed, however, by a plethora of minor factual errors, and sloppy translation of German technical terminology.

55. Dreux, William B., *No Bridges Blown,* Notre Dame: University of Notre Dame Press, 1971. Description of covert operations in France prior to D-Day.

56. Durand, Ralph A., *Guernsey under German Rule,* London: Guernsey Society, 1946. Account of the living conditions on the Channel Islands during the occupation.

57. Edwards, Roger, *German Airborne Troops 1936-45,* Garden City: Doubleday and Company, 1974. Superficial history of German Fallschirmjager operations. Especially weak on Normandy. Interesting unit histories, however.

58. Essame, Hubert, *Normandy Bridgehead,* New York: Ballantine Books, 1970. One of the better numbers in the Ballantine series. Suffers from trying to tell too much in too few pages. Fair overview of campaign.

59. Florentin, Eddy, *Battle of the Falaise Gap,* London: Elek Books, 1965. A lightweight treatment of the last battle of the campaign. Mediocre.

60. Galland, Adolph, *The First and the Last, The Rise and Fall of the German Fighter Forces, 1938-1945,* Trans. Mervyn Savill, New York: Henry Holt and Co., 1954. A very readable account of fighter operations by an expert. Includes a concise, direct explanation for the failure of the Luftwaffe to respond to the *Overload* landings.

61. Grandais, Albert, *La Bataille du Calvados,* Paris: Presses de la Cite, 1973. A monstrous French language book that looks at the campaign from point of view of its effects on people, places and things. Very French.

62. Hoffschmidt, E.J., and Tantum, W.H., IV, (eds.) *The Rise and Fall of the German Air Force (1933 to 1945),* Old Greenwich: WE, Inc., 1969. Contains a good, concise account of Luftwaffe air activity during the invasion. Also points out the deleterious effects of low serviceability of units stationed in France.

63. Hunt, Robert and Mason, David, *Camera at War: The Normandy Campaign,* London: Leo Cooper, 1976. A light photo essay of the campaign. Good maps for the novice reader.

64. Hunter, Robert H., *Battlecoast,* Bourne End: Spurbooks, 1973. A superficial history of the campaign and the physical "challenge" of the effort. Fair.

65. Kahn, David, *Hitler's Spies: German Military Intelligence in World War II,* New York: MacMillan Publishing Co., Inc., 1978. Very readable, highly interesting look at German intelligence effort. Good discussion of German evaluation of Allied invasion intentions.

66. Kuhn, Voklmar, *German Paratroops in World War II,* London: Ian Allan, Ltd., 1978. Trans. H.A. and A.J. Barker. The most biased, propagandizing rubbish to see print in years. Hopes of reading a good German-viewpoint account are dashed when one reads about the 'heroic' efforts of 6 F.S. Regiment in Normandy but finds no mention of the mass surrender of one of the three battalions. The author also credits a cyclist "company"—20 men on motorcycles, with "successfully ambushing a U.S. Infantry battalion capturing 13 officers and 600 men." Incredibly, the author claims "the U.S. 101 Airborne Division had been defeated but at a high cost to the paratroops." He claims 6 F.S. Regiment was in action until 12 Aug when it was withdrawn after an action in which 3,000 paratroops were casualties. The full-strength size of the unit was only 3,400 total on 5 June, however.

67. LeRoy, Claude, *Oustreham-Riva Bella a l'heure du de barquement,* Conde-sur-Noireau: C. Corlet, 1974. A French-language travelogue on the effects of the invasion on the local inhabitants.

68. Lewin, Ronald, *Ultra Goes to War,* New York: McGraw Hill Books, 1978. A rather uneven account of the codebreaking efforts associated with *Ultra.* Its comments on *Ultra* and the Normandy Campaign are, nonetheless, intriguing.

69. MacCloskey, Monro, *Rearming the French in WWII,* New York: Richard Rosen Press, 1972. The politics behind the rearming of the Free French formations.

70. McKee, Alexander, *Caen, Anvil of Victory,* London: Souvenir Press, 1964. A surprisingly good account of the bloody battles for Caen. Gripping.

71. _____, *Last Round Against Rommel: Battle of the Normandy Bridgehead,* New York: New American Library, 1964. A general history with a British slant. Fair.

72. Marshal, Gen. S.L.A., *Night Drop,* Boston: Little Brown & Co., 1962. An extremely detailed and confusing account of the American airdrop. Brilliant personal histories laced with good operational reports. Read a general account of operations first, however, to aid in following the action. Suffers from being too much of a one-sided story, but this one-sidedness helps reinforce the feelings of confusion and doubt held by the participants.

73. Morison, Samuel Eliot, *The Invasion of France and Germany,* Boston: Little, Brown & Co., 1957. Naval operations in the European campaign. Good general survey. Recommended basic reading.

74. Norman, Albert, *Operation Overlord, Design and Reality, The Allied Invasion of Western Europe,* Harrisburg: The Military Service Publishing Co., 1952. A good overall account of the planning, and execution of the invaison.

75. Perrault, Gilles, *Le grand jour: 6 juin 1944,* J.C. Lattes, 1974. An expansive French language book on the invasion day itself. Several interesting vignettes on the coastal towns and cities.

76. _____, *The Secret of D-Day,* Boston: Little, Brown & Co., 1965. An account of Allied preparations & German efforts to determine the time and place of D-Day.

77. Ryan, Cornelius, *The Longest Day,* New York; Simon and Schuster, 1959. Anecdotal, fragmented account of D-Day, nonetheless a classic description of the sheer magnitude of the operation.

78. Shulman, Milton, *Defeat in the West,* London: Secher & Warburg, 1947. A strategic analysis of the causes of the German defeat.

79. Speidel, Hans, *Invasion 1944, Rommel and the Normandy Campaign:* Chicago: Henry Regnery Co., 1950. Based upon his Foreign Military Studies manuscripts, this is a narrative account of campaign as seen from Rommel's headquarters.

80. Sweet, John J.T., *Mounting the Threat, The Battle of Bourquebus Ridge, 18-23 July 1944,* San Raphael: Presidio Press, 1977. Good account of British operation by an American author. Detailed narrative, good maps, good notes & bibliography.

81. Swettenham, John Alexander, *D-Day,* Ottawa: Canadian War Museum, 1970. A small folio concentrating on the exploits of the Canadian units. Good maps.

82. Thompson, Reginald William, *D-Day: Spearhead of Invasion,* New York: Ballantine Books, 1968. One of the better numbers of the Ballantine series. Satsifactory introductory text if one knows *very* little about the invasion.

83. Tute, Warren, *D-Day,* New York: Macmillan, 1974. Another unremarkable history of the landings. Although it covers the old ground adequately, it reveals nothing startlingly new.

84. Vallavieille, Michel de, *Jour-J a Utah Beach,* St. Marie du Mont: la Mairie, 1973. Another interesting French language tour guide of the Utah sector. Useful for terrain justification.

85. Wilmot, Chester, *The Struggle for Europe,* New York: Harper & Row, 1952. Classic work on the strategic conduct of the European campaign. Recommended basic reading.

86. Wilt, Alan F., *The Atlantic Wall: Hitler's Defenses in the West,* 1941-1944 Ames: The Iowa State University Press, 1975. A good, scholarly approach to the strategic situation in the west and how that impacted on German defensive preparations. Excellent bibliographical source listing and annotation.

87. Winterbotham, F.W., *The Ultra Secret,* New York: Harper & Row, 1974. The first-and worst- of the Ultra exposes. Very self serving, incomplete, and misleading. As the first of its kind, however, it retains a certain curiosity value.

88. Wood, Alan, and Wood, Mary, *Islands in Danger: The story of the German Occupation of the Channel Islands 1940-45,* London: Evans Bros., 1955. Good account of the occupation and conduct of 319 Division.

UNPUBLISHED ARTICLES, NOTES, AND REPORTS

89. Barnard, Geoff, Unpublished notes on the British and German order-of-battle during the Normandy campaign. Compiled March, 1978. England.

90. Carus, Seth, *An Annotated Bibliography of Armored Warfare (interim edition),* unpublished manuscript, May, 1978, U.S.A.

91. Harvey, A.J. (Col. RM) *Characteristics and employment of Royal Marine Armored Support Group in Operation Overlord,* report to Chief of Combined operations. Public Records Office, London, England, (ADM-202 305 X/M 07775). Dated November 28, 1944.

92. Hodgson, James B., Unpublished manuscripts, notes, diagrams and tabular data used for preparation of *Cross Channel Attack* and *Breakout and*

Pursuit, complied during late 1940's and early 1950's, OCMH Files, Center for Military History, Washington, D.C.

93. Ralston, Daniel, Unpublished notes regarding the origin and composition of the German 21 Panzer Division. Compiled July, 1978. U.S.A.
94. Smith, Andrew, Unpublished notes and extracts from German publications outlining strengths, location and armament of German coastal artillery positions. Compiled March 1979, England.
95. Stauffer, John E., Unpublished notes regarding the strength and composition of German panzer units in Normandy. Compiled Aug-November, 1978. U.S.A.

MAGAZINE ARTICLES

96. Anon., "The Battle of Falaise Pocket", *After the Battle,* No. 8 (1975), pp. 1-39.
97. Anon., "The German Light Radio-Control Tank Company", *AFV-G2,* Vol. 5, No. 7, (January 1976), pp. 30-32.
98. Anon., "The Liberation of Paris", *After the Battle,* No. 14, (1976), pp. 15-24.
99. Anon., "Normandy 1944-1973" *After the Battle,* No. 1, (1973), pp. 2-40.
100. Anon., "The U.S. Cavalry Recon. Troop of 1944", *AFV-G2,* Vol. 5, No. 8 (March-April, 1976), pp. 40-42.
101. Anon., "The U.S. Army Light Tank Battalion Headquarters and HQ Company", *AFV-G2,* Vol. 5, No. 2, (January, 1975), pp. 28-31.
102. Auerbach, Bill, "76-mm Gun Motor Carriage M18 (T70)" *AFV News,* Vol. 13, No. 2, (March 1978), pp. 4-5, 8).
103. Barclay, Bruce, "Organization of a U.S. Armored Division in W.W. II (pts 1 through 7)", *AFV News,* Vol. 7, No. 2 through Vol. 9, No. 1.
104. Bogart, Charles H., "V Corps Tank Battalions," *AFV News,* Vol. 13, No. 3, (May, 1978) p. 5.
105. Decker, Paul "Crocodile" *AFV News,* Vol. 14, No. 1 (January, 1979) pp. 3-5.
106. Hogg, Ian, "Nebelwerfer," *War Monthly,* Issue 30, pp. 1-6.
107. Marshal-Cornwall, Gen. Sir James, "Normandy, 1940", *War Monthly,* Issue 45, pp. 1-9.
108. Miller, Commander M.O., "LCT Commander" *War Monthly,* Issue 25, pp. 1-9.
109. Murphy, W.F., "Heeres Sturmgeschutz Formations in 1941-45", *AFV News,* Vol. 11, No. 2 (March, 1976) pp. 8-9.
110. Murphy, Williams F., Jr. "Tiger Formation: an inspection of deployment and markings" *AFV News,* Vol. 14, No. 3, (May, 1979) pp. 2-7.
111. Platz, William E., "Floater 5, DD Tanks at Normandy", *AFV G2,* Vol. 6, No. 2 (Jan-Feb, 1978), pp. 13-17.
112. _____, "U.S. Army Tank Destroyer Organizations in World War 2" *AFV-G2,* Vol. 5, No. 11, (Jan-Feb, 1977), pp. 32-34.
113. Sohns, Armin L., "German Tactical (Map) Symbols in WWII", *AFV News,* Vol. 8, No. 1, (January, 1973), pp. 2-10.
114. Steuard, James "German Wehrmacht and Waffen-SS Heavy Tank Units" *AFV-G2,* Vol. 3, No. 3, pp. 28-29.
115. _____, "Tactical Markings of the Waffen-SS (pt.1)" *AFV-G2,* Vol. 4, No. 3, (March-April, 1973), pp. 14-16.
116. Steuard, Jim "Combat Units of the Waffen-SS: 1. SS Panzer Division Leibstandarte-SS Adolf Hitler", *AFV-G2.*
117. Seguin, Dennis, "Panzerstellung", *AFV News,* Vol. 8, No. 4 (July 1973), pp. 6, 7.

U.S. ARMY HISTORICAL DIVISION

(United States Army, Historical Division, *Foreign Military Studies* series manuscripts (NA record group 339), 1945-57.)

This is a series of unpublished manuscripts written by captured German officers at the end of hostilities while still under Allied control. Many were written from memory while others had scant reference materials. Overall, however, the entire series represents a very valuable and important source of information. The following manuscripts were consulted in the research for this simulation:

118. ETHINT-1 *From Invasion to the Siegfried Line.* By Gen. Walter Warlimont. 48 pp., 19-20 July 1945. The Allied landing; Cherbourg: replacement of von Rundstedt; breakthrough and Mortain; fall of Paris and retreat.
119. ETHINT-13. *Panzer Tactics in Normandy.* By Gen. Leo Frhr. Geyr von Schweppenburg. 9 pp., 11 Dec 1947.
120. ETHINT-17 *116th Panzer Division in Normandy.* By Genleut. Gerhard Graf von Schwerin. 22 pp., 1 Sep 1945.
121. ETHINT-35 *Luftwaffe at Avranches.* By Maj. Herbert Buechs. 3 pp., 1 Sep 1945.
122. ETHINT-38 *Panzer Tactics, Normandy.* By Gen. Heinz Guderian. 8 pp., 28 Jan 1946.
123. ETHINT-66 *Panzer Lehr Division, Mission (Jan-28 Jul 1944).* By Genleut. Fritz Bayerlein. 37 pp., 15 Aug 1945.
124. ETHINT-67 *Normandy Critique; Panzer Lehr Division (Jul 1944-Apr 1945).* By Genleut. Fritz Bayerlein 37 pp., 15 Aug 1945.
125. ETHINT—76 *6th Parachute Regiment and Operation COBRA (25-30 Jul 1944).* By Oberst Friedr. Frhr. von der Heydte. 4 pp., 8 Jan 1946. Operations in Normandy, reported by the regimental commander.
126. ETHINT-78 *3rd Parachute Division in Normandy (15 Jan-16 Jul 1944).* By Gen. Eugen Meindl and Genleut. Rich. Schimpf. 2 pp., 12 Jan 1946. Joint report by the division commander and his immediate superior.
127. A-871 *21st Panzer Division in Combat Against American Troops in France and Germany.* By Genleut. Edgar Feuchtinger. 62 pp.
128. A-902 *Panzer Lehr Division (24-25 Jul 1944).* By Genleut. F. Bayerlein. 4 pp., 1945. Effect of Allied air attack on the Panzer Lehr Division.
129. A-903 *Panzer Lehr Division (15-20) Jul 1944).* By Genleut. F. Bayerlein. 16 pp. Operations in Normandy.
130. A-904 *Avranches.* By Gen. Heinrich Freiherr von Luettwitz. 21 pp., 1945. Operations of the 2d Panzer Division in Normandy, 1944, described by the division commander.
131. A-907 *Seventh Army (20 Jun-20 Aug 1944).* By Gen. (Waffen-SS) Paul Hausser. 9 pp., 1945. By the army commander.
132. A-919 *The Argentan-Falaise Pocket.* By Genmaj. R. von Gersdorff. 11 pp., 1945. By the Seventh Army chief of staff.
133. A-920 *From Counterattack at Avranches to the Falaise Pocket.* By Genmaj. R. von Gersdorff. 15 pp., 1945. By the Seventh Army chief of staff.
134. A-921 *Avranches Counterattack, Seventh Army (29 Jul-14 Aug 1944).* By Genmaj. R. von Gersdorff. 48 pp., 1945. By the army chief of staff.
135. A-922 *Panzer Group Eberbach and the Falaise Encirclement.* By Gen. Hans Eberbach. 32 pp., 3 illus., 1946. The period 1 July-20 August 1944, with reasons for the German defeat.
136. A-956 *6th Parachute Division—Combat in Northern France (to 24 Aug 1944).* By Genleut. Ruediger von Heyking. 24 pp., 1946.
137. A-983 *353d Infantry Division (Nov 1943-24 Jul 1944).* By Genleut. Paul Mahlmann, 19 pp., 10 illus., 1946. Organization in Brittany, 1943; move to Normandy, late June 1944, combat against American forces, July 1944. Serves as prologue to A-984.
138. A-984 to A-987 *353d Infantry Division (24 Jul-14 Sep 1944).* By Genleut. Paul Mahlmann. 4 vols., 50 pp., 45 illus., 1946. Avranches; Falaise, Seine to the Meuse, Meuse to the Siegfried Line. (Four manuscripts in one folder).
139. B-O10 *91st Airborne Division (10 Jul-Aug 1944).* By Genmaj. Eugen Koenig. 8 pp. Operations in Normandy.
140. B-015 *Defense of Paris.* By Genleut. Wilhelm Frhr. von Boineburg. 9 pp., 1 illus., 1946.
141. B-017 *116th Panzer Division (6 Jun-12 Aug 1944).* By Genmaj. Heinrich Voigtsberger. 10 pp., 1946.
142. B-020 *3d Parachute Division (6 Jun-24 Jul 1944).* By Genleut. Rich. Schimpf. 12 pp., 6 illus., 1947. In France; a valuable historical study by the division commander.
143. B-020 to B-020d *3d Parachute Division (6 Jun 1944-Mar 1945).* By Genleut. Rich. Schimpf. 10 pp., 1946. Brief answers to questionnaries on Normandy, northern France, the Ardennes, and the Rhineland campaign.
144. B-131 *7th Werfer Brigade (24 Mar-30 Apr 1945).* By Genmaj. Kurt Paape. 3 pp., 2 illus., 1946. Fighting on the Lech River.
145. B-163 *363d Infantry Division (Jan-24 Aug 1944).* By Genleut. Augustin Dettling. 24 pp., 6 illus., 1946. Normandy.
146. B-169 *Marine Gruppenkommando West (1943-14 Jan 1944).* By Admiral Theodor Krancke. 36 pp., 5 illus., 1946. Naval Group West in defense against the Allied landing; of historical and technical interest.
147. B-230 *708th Infantry Division (10-19 Aug 1944).* By Oberst Bruno Gerlach. 5 pp., 1 illus., 1946. Operations in Normandy.
148. B-234 *Preparations for Invasion.* By Genleut. Max Pemsel. 40 pp., 3 illus., 1946. By the chief of staff of Seventh Army.
149. B-244 *85th Infantry Division (Feb-July 1944).* By Oberleut. i. G. Kurt Arth. Schuster. 8 pp., 2 illus., 1946. Organization.
150. B-256 *271st Infantry Division (Mar-13 Aug 1944).* By Genelut. Paul Danhauser. 20 pp., 1946 Normandy.
151. B-257 *2d Panzer Division (6 Jun-24 Jul 1944).* By Gen. Heinrich von Leuttwitz. 29 pp., 1 illus., 1946.
152. B-260 *Cotentin Artillery (6-18 Jun 1944).* By Genmaj. Gerhard Triepel. 12 pp., 1 illus., 1946. Fighting on the Cotentin Peninsula, with special reference to the coast artillery.
153. B-358 *Leibstandarte Adolf Hitler in Aug 1944. By Genmaj. der Waffen-SS Theodor Wisch. 6 pp., 1946. Questionnaire on the fighting in Normandy (Avranches, Falaise), August 1944.*
154. *B-370 to B-373 275th Infantry Division (31 Jul-1 Oct 1944).* By Genleut. Hans Schmidt. 4 vols., 78 pp., 6 illus., 1946-7. Narrative by the division commander based on personal diary. Delaying action in Northern France and the Rhineland.
155. B-381 *16th Luftwaffe Field Division (1 Nov 1943-1 June 1944).* By Genleut. Karl Siervers. 17 pp., 1947. Organization, training, and preparations for coast defense.
156. B-388 *352d Infantry Division (6 Jun 1944).* By Oberleut. Fritz Ziegelmann, 36 pp. D-Day in Normandy. Extracts from the operations officer's telephone log.
157. B-401 *II Parachute Corps (Dec 1942-24 Jul 1944).* By Gen. Eugen Meindl. 41 pp., 1946. By the corps commander.
158. B-403 *711th Infantry Division (1 Apr 1943-24 Jul 1944).* By Genleut. Joseph Reichert. 24 pp., 1947. By the division commander.
159. B-408 *Antitank Division West—Seventh Army.* By Oberleut. i. G. Ulrich Klimke, 8 pp., 1947. The organization and mission of this improvised unit, which was never committed in actual combat. Includes views on future organization.
160. B-419 *18th Luftwaffe Field Division (6 Jun-24 Jul 1944).* By Genleut. Joachim Tresckow. 16 pp., 5 illus., 1947. Normandy.
161. B-425 *89th Infantry Division (8-15 Aug 1944).* By Oberst Hasso Neitzel. 10 pp., 2 illus., 1947.
162. B-432 *352d Infantry Division (5 Dec 1943-6 Jun 1944).* By Oberleut, Fritz Ziegelmann. 42 pp., 6 illus., 1946. Organization and fighting on D-Day in Normandy.
163. B-433 to B-439 *352d Infantry Division (7 Jun-10 Jul 1944).* By Oberleut. Fritz Ziegelmann. 7 vols., 72 pp., 7 illus., 1946-47. Continuation of MS # B-432.
164. B-441 *21st Panzer Division (1942-Jul 1944).* By Genleut. Edgar Feuchtinger . 50 pp., 1947. Organization and fighting to 3 July 1944 in Normandy.

165. B-469 *91st Airborne Division Artillery (18 Jun-31 Jul 1944).* By Genmaj. Gerhard Triepel. 9 pp., 1947.

166. B-470 *9th SS Panzer Division (20 Jun-24 Jul 1944).* By Genmaj. Sylvester Stadler. 22 pp., 1947. A clear picture of frontline conditions.

167. B-490 *352d Infantry Division (Conclusions, 6 Jun-30 Jul 1944).* By Oberleut. Fritz Ziegelmann. 17 pp., 4 illus., 1947. Very interesting and valuable evaluation from the viewpoint of a fighting infantry division.

168. B-526 *276th Infantry Division (1 Jan-20 Aug 1944).* By Genleut. Kurt Badinski. 73 pp., 4 illus., 1947. Normandy and northern France.

169. B-529 *271st Infantry Division (12-28 Aug 1944).* By Genleut. Paul Danhauser. 22 pp., 6 illus., 1947. Normandy.

170. B-540 *272d Infantry Division (15 Dec 1943-26 Jul 1944).* By Gen. Friedrich Schack. 19 pp., 3 illus., 1947. Activation, training, combat in Normandy.

171. B-541 *3d Parachute Division (Jan-Aug 1944).* By Genleut. Richard Schimpf. 28 pp., 3 illus., 1947.

172. B-542 *70th Infantry Division (10-22 Sep 1944) and 331st Infantry Division (15 Jul-5 Sep 1944).* By Genleut. Walter Steinmueller. 21 pp., 1947.

173. B-597 *III Flak Corps (May-14 Sep 1944).* By Gen. Wolfgang Pickert. 42 pp., 4 illus., 1947. Normandy; of historical and technical interest.

174. B-609 *560th Volks Grenadier Division (5 Feb-9 Mar 1945).* By Genmaj. Rudolf Bader. 10 pp., 2 illus., 1947. Defense of the Trier area.

175. B-610 *277th Infantry Division (13 Aug-8 Sep 1944).* By Genmaj. Wilhelm Viebig. 20 pp., 1946. Normandy.

176. B-630 *277th Infantry Division (Jan-24 Jul 1944).* By Oberleut. i. G. Horst von Wangenheim. 52 pp., 2 illus., 1947. Battle experiences of a frontline division.

177. B-663 *Coast Artillery—Altantic Wall.* By Genleut. Ernst Goettke. 14 pp., 1947.

178. B-666 *II SS Panzer Corps Artillery (15 Jun-24 Jul 1944).* By SS Genmaj. Friedrich W. Bock. 11 pp., 1947 Normandy.

179. B-673 *XLVII Panzer Corps (11 Jun-27 Jul 1944).* By Gen. der Panzertruppen H. von Lueitwitz. 5 pp., 1947.

180. B-677 *Luftwaffe Ground Organization, France (Jun-Jul 1944).* By Genmaj. Erwin Notti. 17 pp.

181. B-680 *17th Luftwaffe Field Division (25 Jul-1 Sep 1944).* By Oberst i. G. Elmar Warning and Genleut. Hans Hoecker. 59 pp., 1 illus., 1946.

182. B-725 *Northern France—Vol. IV: Avranches Counterattack (1-11 Aug 1944).* By Genmaj. Rudolf Freiherr von Gersdorff. 64 pp., 4 illus., 1946.

183. B-814 *Panzer Operations (6-8 Jun 1944)* By Genmaj. der Waffen-SS Fritz Kraemer and Genleut. Fritz Bayerlein. 9 pp., 5 illus., 1948. Answers to a questionnaire on the commitment of armor against the Normandy landings.

184. B-820 *5th Parachute Division (6 Jun-24 Jul 1944).* By Genleut. Gustav Wilke. 7 pp. In Normandy.

185. B-832 *I SS Panzer Corps Artillery (6 Jun-30 Jul 1944).* By SS Genleut. Walter Staudinger. 3 pp., 1948. In Normandy.

186. B-837 *9th Panzer Division (24 Jul-4 Sep 1944).* By Genleut. Erwin Jolasse. 14 pp., 1948. In Normandy and northern France.

187. B-844 *Kampfgruppe Keil (5-20 Jun 1944)* and 1058th Infantry Regiment (6-8 Jun 1944). By Oberleut. Guenther Keil. 22 pp. First days of the Normandy invasion.

188. B-845 *709th Infantry Division (Dec 1943-30 Jun 1944).* By Genleut. Karl-Wilhelm von Schlieben. 158 pp., 1948. Defense of Cherbourg; in part based on official war diaries.

189. P-005 *Personnel and Administration* By Genmaj. Burkhart Mueller-Hillebrand. 1948.

190. P-085 *Infantry Organization & Equipment* By Genmaj. Hellmuth Reinhardt. 1951.

191. R-24 *German Tactical Situation,* July, 1944.

192. R-83 *German Order of Battle,* July-August 1944.

MICROFILM SOURCES

193. A.O.K. 7, *7 A.O.K. Kriegstagbuch: 1.5.44.* Captured German Documents section, National Archives Record Group 312, roll 1566, frames 1-895. Detailed orders-of-battle diagrams, strength reports and supply status for all major and minor Wehrmacht units in Seventh Army.

194. A.O.K. 15, *15 A.O.K. Kriegstagbuch, Nr. 5* Captured German Documents section, National Archives Record Group 312, roll 516. Excellent data on divisional and army-level artillery plus good OoB diagrams on units involved in Normandy fighting.

195. A.O.K. 15 *Artillerie Gliederung der 15 A.O.K. Stand 1.6.44* Captured German documents section, National Archives Record Group 312, Vol. 1516, frames 30-570. Excellent look at units in 15 Army on the eve of D-Day with special emphasis on status of all available artillery units—including Flak, coastal, and railroad, under 15 A.O.K. control.

196. Military Intelligence Service, *Company Officers Handbook of the German Army* (Special Series No. 22) Military Intelligence Service, National Archives Record Group 60, roll 124.

197. Military Intelligence Service, *The German Armored Divisions,* Military Intelligence, 1943, National Archives Record Group 60, roll 124.

198. Military Intelligence Service, *German Infantry Weapons,* (Special Series No. 14), 1943, National Archives Record Group 60, roll 124.

199. Military Intelligence Service, *German Military Abbreviations,* April, 1943. (Special Series No. 12) Military Intelligence Division, National Archives Record Group 60, roll 124.

200. Military Intelligence Service, *German Military Symbols, April, 1944.* Military Intelligence Service, National Archives Record Group 60, roll 124.

201. Military Intelligence Service, *Order of Battle of the German Army,* Editions: September and October, 1942; April 1945; February 1944; and March 1945. Military Intelligence Service, National Archives Record Group 60, roll 15.

202. War Dept., *Handbook on German Army Identification,* War Dept., 1943, National Archives Record Group 60, roll 124.

203. War Dept., *TM E-30-451 Handbook on German Military Forces,* War Dept., 1943, 1945. National Archives Record Group 60, roll 124.

MAPS AND CARTOGRAPHIC SOURCES

204. A.O.K. 7 (German 7 Army), *Lage 7. Armee Stand 25.2.44,* (Position of 7 Army units in northwest France on 25 February, 1944), 1:500,000, 15″x20″ photocopy-from-microfilm of survey map (''Zusammendruk Nordwest Frankreich 1:500,000 Duetsche Heereskarte''), from National Archives microfilm record group T-312, roll 1570, frame 3, (Potsdam Doc # A.O.K 7/57351/10 (?).) Remarkable to see how defenses in 7 Army sector was greatly expanded in the last 3-4 months with the additions of double the units available in February. One is impressed by the Allies' ability to keep pace in their planning in the face of constant changes by the Germans.

205. A.O.K. 7 (German 7 Army), *Lage 7 Armee, Stand. 22.5.44* (Position of units belonging to 7 Army on 22 May, 1944.) 1:500,000, 30″ × 40″ photostat of survey map (French-otherwise unidentified) from Bundesarchiv, Militarchiv, Frieburg, West Germany (Potsdam Doc # A.O.K. 7/57357/10.) Corroborative source for the more important 5 June 1944 map. Only modest changes in German disposition, confined mainly to Brittany, in the last two weeks before the invasion.

206. A.O.K. 7 (German 7 Army), *Lage 7. Armee Stand 5.6.44* (Position of units belonging to 7 Army on 5 June, 1944), 1:500,000, 30″ × 40″ photostat of survey map (French, otherwise unidentified), from Bundesarchiv-Militararchiv, Frieburg, West Germany (Potsdam Doc # A.O.K. 7/57351/10.) This map used for positioning German units at start. Main document source although modified by several other corroborative sources. Shows exact position of all HQ's down to battalion size, with names of chateaus and hamlets penciled in.

207. A.O.K. 7 (German 7 Army), *Lage Normandie, Stand 30.6.44, 22,00 Uhr,* (Position of German units on the Normandy front, June 30, 1944, 2200 hours.) 1:200,000 27½″ × 35″ photostat survey map (''St. Lo, Ausgabe Nr. 3 Frankreich 1:200,000'' Deutsche Heerescarte), from Bundesarchiv-Militararchiv, Freiburg, West Germany (Potsdam # A.O.K. 7/57351/11). Key situation map in which the 'Caen emphasis' is already apparent in German defense positions.

208. A.O.K. 15 (German 15 Army), *Stand der Eingreifreserven, 12.6.44,* (Position of 15 Army units in the Pas de Calais) 1:1,000,000, 19″ × 17½″ photostat survey map (French, otherwise unidentified), from Bundesarchiv-Militararchiv, Freiburg, West Germany (Potsdam # A.O.K. 15/59364/13). Secondary map mainly of interest for disposition of forces on Pas de Calais coast that would shortly be moving into the Normandy battle front. Quality of troops remaining in 15 Army area is surprising: 19 Panzer Div, 715 Infantry Div (mot.), 1 SS Panzer Division, 116 Panzer Division, 102 SS Tiger battalion, and 668 Panzerjager Abt.

209. A.O.K. 15 (German 15 Army), *Lage am 8.6.44* (Position of 15 Army units east of Orne River, June 8, 1944), 1:100,000, 15″ × 15″ photostat of survey map (''Caen S.E.'', Institute Geographic National, 136 bis Rue de Grenelle Paris-VII, type 1889), from Bundesarchiv-Militararchiv, Frieburg, West Germany (Potsdam # A.O.K. 15/59364/13). Minor map showing detailed position of 711 and 346 Infanterie Divisions in the first critical days of the campaign.

210. Great Britian, Geographical Section, General Staff, *France, Scale 1:250,000* (Map of Normandy and Calvadoes), 1:250,000, 25″ × 28½″ photostat from Library of Congress, Geography and Map Division, Alexandria, VA (LC#G5830S250.G7). This map was used as basis for mapboard, incorporating towns, rivers, major roads, major peaks, swamps and woods. Standard GSGS map.

211. OB WEST, *Lage West, 28.5.44,* OKH—Gen St d H, Op. Abt. IIIb, (Position of divisions and independent battalions in France, 28 May 1944), 1:1,000,000, 27″ × 32″ photostat survey map (''Ubersichcarte 1:100,000, Frankreich'') Gea-Verlag K.G. Berlin 35- Gea Verkehrskarte-Deutsches Reich 1:1000,000), from National Archives, Military Archives Division, Modern Military Branch, (Heeresarchiv-Potsdam archiv. Nr. 7803). Excellent 'overview' map of France, showing position of all major units and headquarters in France just prior to the invasion.

212. OB WEST, *Lage West, Stand 5.6.44* (partial) (Positions of OB West units along coast, north and NW of Paris), 1:1,000,000, 23½″ × 17″ photo reporduction of part of survey map (''Ubersichcarte 1:1,000,000 Frankreich Gea-Verkhrskarte-Deutsches Reich 1:1,000,000'') from National Archives, Modern Military Branch, (Record Group 242.) Remarkable for the order-of-battle of Allied units portrayed in England. Shows just how well Allied deception worked. Number of Allied formations exaggerated 200%. Shows no less than SEVEN Allied airborne divisions and six independent parachute battalions!

213. OB WEST, *Gliederung im Bereich, OB West, Stand 1.7.44* (Position of units under OB West control in northern France on 1 July, 1944), 1:1,000,000, 27½″ × 35″ photostat survey map (''Ubersichtskarte 1:1,000,000'' only indentification) from Bundesarchiv-Militararchiv, Frieburg, West Germany) (Potsdam Doc. #RHIV-GGK-1). Situation of all units in northern France, from Amsterdam ato St. Nazaire. Regiment & Division positions shown.

214. OB WEST, *Frontlage Stand 1.8.44* (Position of German units onthe Normandy front as of 1 August 1944) 1:100,000, 35″ × 35″ photostat survey map (French, otherwise unidentified), from Bundesarchiv-Militararchiv, Frieburg, West Germany. (Potsdam Doc #RH19IV/66K-3). Excellent details of German unit placement at beginning of breakout. Shows entire front from Baie due Seine to Baie du Mont St. Michel.

215. Office of Strategic Services, Research and Analysis Branch, *Beaches of Normandy, St. Vaast to Isigny,* (beach topography), provisional edition, (no scale listed), 5″ × 12″ reduced photocopy, published 23 November, 1943. From National Archives, Modern Military Branch, (Record Group 226, Map 2439) Superb maps which show critical features unencumbered with superflous detail. Important for analytical notes concerning serviceability of beaches for assault landings.

216. Office of Strategic Services, Research and Analysis Branch, *Beaches of Normandy; Vierville to Houlgate,* (beach topography of Vierville-Port en Bessin, Arromanches-Berniers. Ouistrehan-Houlgate), provisional edition, (no scale listed), 5″ × 12″ reduced photocopy, published 23 November, 1943. From National Archives, Modern Military Branch, (Record Group 226, Map 2438.)

217. Office of Strategic Services, Research and Analysis Branch, *N.W. Normandy: Port Classifications,* (Ports in Normandy and major rail net), provisional edition, 1:60,000, 12″ × 12″ reduced photocopy, published 23 November, 1943. From National Archives, Modern Military Branch, (Record Group 226, Map 2376) Graphically shows all potentially useful ports and their tonnage, as well as being useful for discriminating major rail nets from minor ones.

218. Office of Strategic Services, Research and Analysis Branch, *N.W. Normandy: Roads,* (Road net of Normandy area) provisional edition, 1:60,00, 12″ × 12″ photocopy, published 23 November 1943. From National Archives, Modern Military Branch, (Record Group 226, Map 2418). Excellent document for determining importance of roads found on other maps. Suppresses really minor roads & tracks to generate an accurate picture of the traffic pattern.

219. Supreme Headquarters Allied Expeditionary Forces, *France: German Coastal Defenses (O.N.I. Appendix 7, Annex C).* (Positions, number of weapons, calibers, arc of fire, and range of German coastal artillery batteries, "Based upon Information to April 14, 1944".), 1:147,700, 16½″ × 24″ photostat of nautial map ("Prepared by the Hydrographic Dept. of th Admiralty, 15 March, 1944 . . . "), National Archives, Modern Military Branch, (Record Group 331). This map says it all in one picture. Information is fairly complete and 95% accurate. Ranges and arcs of fire very useful.

220. Supreme Headquaraters Allied Expeditionary Force, *1:5,000 BOGUS Map (Mapsheets B, C, D),* (German defenses near Arromanches), 1:5,000, three sections each 12″ × 10″ photocopy, National Archives, Modern Military Branch, (Record Group 407). Incredibly detailed maps showing every house, fence, road, gun position, and entrenchment in the invasion area. Place names, however, have been substituted with code names, requiring another map for 'translation'.

221. United States, Engineering Section, 12 Army Group HQ, *Situation-2400 HRS 8 June 1944,* (Map of Normandy-Calvados showing approximate front-line positions of German and Allied Regiments and Battalions), 1:500,000, 16″ × 18″ photostat of GSGS 4072 1:500,000 Air Maps, from National Archives, Modern Military Branch (Record Group 407). Questionable accuracy mars on otherwise useful map. Even British units are mislabelled.

222. von Schlieben, Genleut Karl-Wilhelm, *709 Infanterie Division (12.43-30.6.44) Anlagen 2,* (Positions of Kreigsmarine and Coastal Artillery batteries on Normandy Coast, from MS#B-845) 1:100,000, two maps each 21″ × 15½″, photostats of handwritten notation on GSGS map ("France, Scale 1:100,000" Sheet 5E Les Preux-Guernsey and Sheet 6E Cherbourg-Valogne GSGS No. 4249, 1943), from Foreign Military Studies manuscript MS#B-845, 1948.

223. von Schlieben, Genleut Karl-Wilhelm, *709 Infanterie Division, 12-43-30.6.44, Anlagen 6* (Position of 1709 Artillery Regiment batteries on Cotentin Peninsula, from MS#B-845), 1:100,000, two maps each 21″ × 15½″, photostats of handwritten notations on GSGS map ("France, Scale 1:100,000" Sheets 5E Les Pieux-Guernsey and Sheet GE Cherbourg-Valognes, GSGS No. 4249, 1943) from Foreign Military Studies manuscript MS#B-845, 1948.) These two von Schlieben maps are very important insofar as they outline the exact location of all coastal artillery batteries—marine, coastal artillery, and regular artillery units. Written in his own hand, they are unique historical documents.

224. Ziegelmann, Obersleut. Fritz, *Orginalskizze uher taktische Gliederung 352 I.D.* (Tactical organization and position of all battalion and company of 352 Division prior to the Invasion, from MS#B-490), 1:80,000, 24″ × 33½″ tissue overlay for 1:80,000 "Deutsche Karte" original (not included), from National Archives, Modern Military Branch, Captured German Documents Section. (Foreign Military Studies manuscript #B-490.) Discovered by chance in the original German-language copy of MS#B-490.

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Compiled by Roger J. Helder, Jr.

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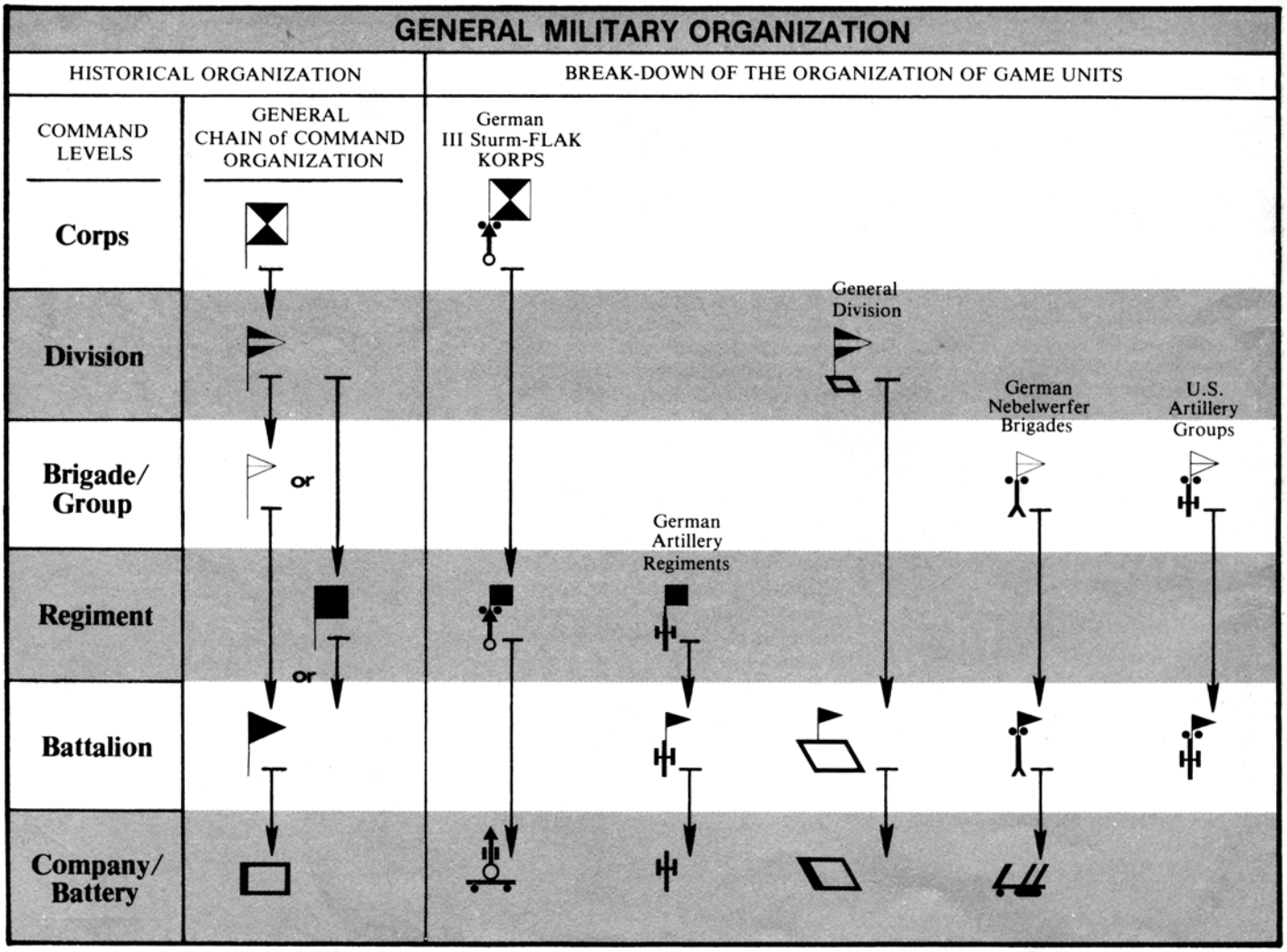
GENERAL MILITARY ORGANIZATION



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